ASIATICK RESEARCHES:

OR,

TRANSACTIONS

OF THE

SOCIETY

INSTITUTED IN BENGAL,

FOR ENQUIRING INTO THE

HISTORY AND ANTIQUITIES, THE ARTS, SCIENCES, AND LITERATURE,

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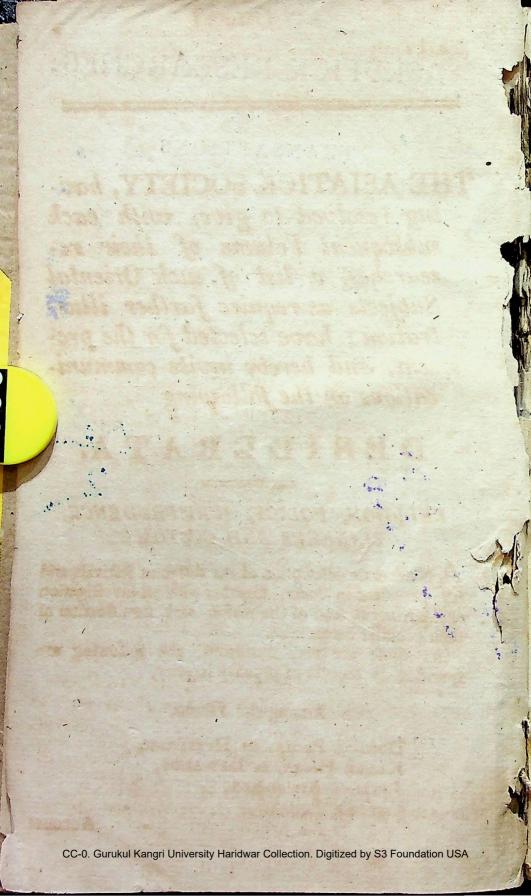

THE ASIATICK SOCIETY, *having resolved to give, with each subsequent Volume of their researches, a list of such Oriental Subjects as require farther illustration; have selected for the present, and hereby invite communications on the following*

DESIDERATA.

RELIGION, POLICY, JURISPRUDENCE, MANNERS AND CUSTOMS.

AN accurate deſcription of the different feſtivals and faſts prevalent in *India*, together with an inveſtigation of their origin, and of the reaſon and ſignification of their peculiar ceremonies.

As thoſe are very numerous, the following are ſpecified as objects of primary inquiry,

Among the *Hindus*.

DOORGA POOJA, or DUSSERAH,
KALEE POOJA, or DEWALEE,
JONMON ASHTOMEE,
CHURKH POOJA,

Account

Account of the pilgrimage to the temple of JAGANAT,HA at *Purſotom*.

Among the *Muſulmans*.

EED UL ZOHA,
EED UL FETR,
EED CHUDEER,

2. AN enumeration of the different caſts of *Hindus*, with the cuſtoms peculiar to each; as exiſting in the preſent time.—See an enumeration from the ancient *Sanſcrit* records, *Aſiatick Reſearches*, Vol. V. p. 53.

3. A CONNECTED hiſtory of the ſeveral *Muſulman* tribes, exiſting in *India*.

AMONG theſe, an account of the ſingular tribe known by the name of *Bohra*, is particularly required.

4. WHAT kinds of oaths are conſidered as peculiarly binding by the different tribes and ſects in *Hinduſtan*?

5. WHAT hiſtorical monuments remain of the goverment, and the ſyſtem of police, which obtained in *Hinduſtan*, previouſly to the *Muſulman* invaſion?

II. *GEOGRAPHY*.

1. A CATALOGUE of the names of Towns, Countries, Provinces, Rivers, and Mountains, from the *Shaſters* and *Purânas*, with their modern names annexed; and a correct liſt, according to the oriental orthography, of the Towns, &c. mentioned by Major RENNELL, and other *European* Geographers. The etymology, as far as practicable, would alſo be deſireable.

2. WHAT were the geographical and political diviſions of the country before the *Muſulman* invaſion?

III. *BIOGRAPHY*.

1. ACCURATE tranſlations of the accounts given of the life and actions of BOUDDHA, by the prieſts of his ſect.

2. To enquire if there be any accounts remaining of CHAUCHASAN, GONAGOM, and GASPA; whom the *Burmas* reprefent as having preceded GODAMA.

3. THE hiftory of MAHAMOONY, a difciple, or follower of GODAMA, to whom, alfo, adoration is paid, by many among the worfhippers of BOUDDHA.

4. A HISTORY of thofe faints, philofophers, &c. either male or female, who have become famous, in modern times among the nations and religious fects that inhabit *India*.

IV. *COMMERCE, NATURAL HISTORY, MATERIA MEDICA.*

1. To inquire into the ftate of the commerce of *India*, previoufly to the firft fettlement of *Europeans*.

2. To afcertain the different trees which produce *Gamboge*, or a gum-refin refembling it; to inveftigate the qualities of the drug, as produced from each of thofe trees, among which we may reckon the following:

Cambogia Gutta. LIN.
Garcinia Celebica. LIN.
Stalagmites Cambogioides. KŒN.
Hypericum Pomiferium. ROX.

To procure accurate figures of the *Stalagmites Cambogioides*, or the *Ceylon* tree, and of the tree which yields this drug in *Cambodia*. Laftly, to determine whether all thefe trees may not be referred to one *Genus*.

3. To afcertain from what country the root commonly called *Columbo* is procured; and to give a botanical defcription and figure of the plant to which it belongs.

4. THE botanical names of plants mentioned in the *Hindu* books of *Materia Medica*.

5. To fupply the deficiencies which remain in the accounts of the production of *Borax*, in the neigh-

bourhood of *Tibet* and *Napal*, as delivered by Mr. BLANE and Father JOSEPH DE RAVATO, in the Philoſophical Tranſactions, vol. 2. 77.

6. Whether the *Tobacco* plant was known in *Aſia*, before the diſcovery of *America*; and whether the edicts ſaid to have been publiſhed by AURUNGZEBE, againſt the uſe of that plant, be authentic?

V. *MEDICINE AND SURGERY.*

1. HISTORY of that peculiar inflammation of the Schneiderian membrane, termed NAKRA, with the mode of treatment by the natives.

2. HISTORY of inoculation for the Small-Pox, among the *Hindus*.

3. ANTIQUITY of the venereal diſeaſe in *India*, and the knowledge which the ancient *Hindu* phyſicians had of its cure.

4. THEIR treatment of the *Leproſy*; with ſome account of the different ſpecies of that diſeaſe, which are met with among the natives of *India*.

5. How long have the natives poſſeſſed the art of couching for a cataract, and from what ſource did they obtain it?

VI. LANGUAGE, LITERATURE.

1. How many dialects are there of the *Hinduwee*, i. e. of languages connected with the *Sanſcrit*; and in what parts of *India* were they, or are they ſpoken?

2. WHAT general term had the natives of *India* before the *Muſulman* invaſion, to deſignate what we imply by the term *Hindu*?

3. To obtain as full a catalogue as poſſible, of books in the *Sanſcrit* and other *Hinduwee* languages; containing the following particulars, as far as they can be aſcertained, viz. the names of the authors, the ſubjects, the dates, the age of the moſt ancient manuſcript of each now known to exiſt; and the places where the books are now to be found.

I. A DIS-

I.

A DISCOURSE

DELIVERED AT A MEETING

OF THE

ASIATICK SOCIETY,

ON THE 18TH OF JANUARY, 1798.

BY SIR ROBERT CHAMBERS, KNIGHT,
PRESIDENT.

GENTLEMEN,

IF I commence with diffidence and timidity the duties of an office to which your suffrages have advanced me, it is not merely because I consider the objects of our researches, as by their extent difficult to be comprehended, or by their variety difficult to be methodized; for obstacles like these will only be encountered by me in common with you, and if they are encountered with vigour, they may be surmounted by diligence.

MY fears proceed from discouragements peculiar to myself. He who sits in this chair is exposed to censure not only by his own defects, but by the virtues of his predecessors. I am to superintend the inquiries and preside at the meetings of this learned Society, in the place successively vacated by two Presidents, not

only equally eminent for extent of learning and elegance of diction, for strength of comprehension and clearness of explanation, but also equally devoted from their early youth to Oriental studies.

WITH Sir WILLIAM JONES, who may not improperly be called the father, as well as first President of this Society, I deem myself happy to have become acquainted when he entered the university, a boy just come from school. I had then many opportunities to observe the wonderful progress which he had already made in the ancient Languages of *Europe*; of which let one instance suffice. He had composed, and brought with him to *Oxford* a comedy written in *Greek* verse, of the *poetical powers* whereof I will not now venture to speak: he himself appears not to have thought very highly of it in that respect. He considered with HORACE, that

> " *Membranis intus positis, delere licebit*
> " *Quod non edideris,*"

and in fact he never did publish it. But the versification afforded a wonderful example of diligence and accuracy, of exuberance of style, and power of expression in *Greek*. It comprised all the different kinds of metre which are to be found in the dramatick writings of *Greece*; and Doctor THOMAS SOMNER of *Harrow*, the best judge of the subject perhaps then in *England*, declared after reading it, that it did not contain one metrical errour.

WITHIN a very few years after this, and while the most laborious student I ever knew was still in his minority, both legal and academical, an undergraduate in the University, and considerably under the age which the law calls the age of discretion, the casual sight of a folio volume filled with extracts from *Arabick* manuscripts afforded me an opportunity of learning that he had filled (in all) four such volumes with similar extracts, made with his own hand in the *Bodleian* library,

library, where, though an undergraduate, he was by ſpecial favour permitted to ſtudy. Many of theſe extracts were probably made from manuſcripts of which no other copies are known to be extant; and it is certain that all of them were tranſcribed from books, which, according to the laws of that library, could not be carried out of it. Had they been leſs rare and more acceſſible, they would hardly have been tranſcribed by Sir WILLIAM JONES at the expence of ſo much time as they required, for I have reaſon to believe that, in his own opinion, their intrinſic merit was not very great. I have mentioned theſe facts becauſe they are not generally known; but as I do not mean to pronounce an eulogy on Sir WILLIAM JONES, nor to attempt even the ſlighteſt ſketch of his life and writings, I ſhall not dwell on the extraordinary diligence with which he laboured in the mines of juriſprudence, at the ſame time that he purſued the ſtudy of Oriental learning; neither ſhall I enter upon a critical examination of the voluminous and convincing proofs he gave the publick of his pre-eminence in both. I ſhall content myſelf with obſerving that if ever the *Engliſh* ſettlements in *India* ſhall add, to the ſplendor of their proſperity in commerce and war, the honour and pride of having, beyond all former example, communicated to *Europe* the wiſdom and learning of *Aſia*, for that well-earned honour, that juſt principle of honeſt pride, they muſt own themſelves indebted to Sir WILLIAM JONES.

FOR my firſt acquaintance with Sir JOHN SHORE, conſiderably more than twenty years ago, I was obliged to my late brother WILLIAM CHAMBERS, afterwards a very worthy and reſpectable member of this Society, and I believe much beloved by all who knew him. Mr. SHORE and he were then very young ſervants of the *Eaſt India* Company, of congenial minds, and attached to each other by ſimilarity of ſtudies and purſuits, having both in making their choice of life pitched upon the ſtudy of *Aſiatick* languages, as the mode in

 which

they could ferve the Company with moft honour and advantage to their employers and themfelves. I may, I believe, venture confidently to add, that the *Eaft India* Company had not at that time any two fervants fo young and fo well acquainted (at the fame time) with the languages and learning of *Afia*, and particularly with the *Perfian* tongue and the authors who have written in it. Pardon, Gentlemen, this mention of a much loved and much lamented brother, to which I have been tempted by the pleafure of uniting his name with that of our late much honoured Prefident.

Soon after the time of which I have fpoken, my brother, led by motives of private convenience, betook himfelf to an humble courfe of life, in which he paffed his days with more utility than luftre, but without ever deferting his favourite ftudies, till it pleafed the Almighty that he fhould reft from his labours. Mr. Shore with that confcioufnefs which every great mind has of its own powers, was not content merely to perfevere with affiduity in his attention to *Perfian* literature, but applied himfelf at the fame time to every fcience and every part of knowledge which might qualify him for the moft important and fplendid offices in the *Britifh* dominions in *Afia*. He became eminent for his minute acquaintance with the revenues of *Bengal*, as well as for his general fkill in finance; for his knowledge of the politicks of *India* in particular, as well as of the fcience of Government in general; and no one was furprifed when after vifiting his native country, he returned to *Bengal* as Sir John Shore, the deftined fucceffor of Lord Cornwallis.

To fpeak of his conduct fince he became Governor General, would be unbecoming, becaufe prefumptuous, and is totally unneceffary, becaufe almoft every member of this Society is as well acquainted with his merits as I can be. I mention him as Governor General only becaufe while in that ftation he accepted the

office

of our Prefident, and proved to us by his own example, that neither the cares of Government, nor the multifarious duties of a Governor General, are inconfiftent with a very confiderable and ufeful degree of attention to *Afiatick* refearches.

SUCH have been the two former Prefidents of the *Afiatick* Society. That by the choice of this learned affembly I am called into the place which *they* have vacated, as it depreffes my hopes, fo it muft excite my diligence. Abilities no man has the power of conferring on himfelf, but fidelity and induftry are always attainable.

WHEN fome refpectable members of this Society firft mentioned to me their own wifh and that of others that I fhould fucceed Sir JOHN SHORE in this chair, I told them, with great franknefs and fincerity, that I did not think I had either health, or leifure, or ability to perform as I could wifh the duties of the office; and particularly, that I thought myfelf deficient in one attainment which might be expected in a Prefident, in as much as I have but a flight and fuperficial knowledge of any *Afiatick* language. Some qualifications for the prefidency the partiality of friendfhip may perhaps difcover in me, and thefe, whatever they may be, fhall be devoted, as far as health and freedom from bufinefs will permit, to the purpofes of the Society. If it is now too late, at the age of fixty, greatly to increafe my own ftock of Oriental literature, I will at leaft endeavour to promote the increafe of it in others.

" *Et fungar vice cotis; acutum*
" *Reddere quæ ferrum valet, exfors ipfe fecandi.*"

II.

NARRATIVE *of a* JOURNEY *from* AGRA *to* OUJEIN.

By WILLIAM HUNTER, *Esq.*

BEFORE entering on the following narrative, it will be proper to detail ſome of the principal circumſtances which led to the journey. That is the ſubject of it, About the month of *September* 1790, SINDIAH, who was engaged in a war with the Rajahs of *Jayanagar* and *Joudhpoor*, but had, for about two years, remained quiet at *Matra*, and confided the operations of the campaign to his generals, thought it expedient (although his arms had lately been crowned with ſignal ſucceſs, at *Meertah*, were the whole force of *Joudhpoor* was, with great ſlaughter, overthrown) to take the field in perſon.

WHEN his intention was certainly known, Major PALMER, the *Engliſh* reſident at his court, who was then at *Agra*, offered to accompany him on the expedition. He replied, that as he expected to return ſoon, he was unwilling to put the reſident to an unneceſſary inconvenience. SINDIAH directed his courſe towards *Jayanagar*, which being deſtitute of the means of defence, and governed by a prince, young, unexperienced, devoted to pleaſure, incapable of ſerious attention, and irreſolute in his councils, was thrown into the greateſt conſternation. The Rajah and his ally of *Joudhpoor* gladly ſubmitted to any conditions of peace that SINDIAH thought proper to dictate. They agreed to pay a heavy fine, and a conſiderable annual tribute; and they ceded the fortreſs and diſtrict of *Ajimere*, which had been ſurrendered to them, in a treacherous, or cowardly manner, during the war, by the officer to whom SINDIAH intruſted their defence.

HAVING brought this affair to a happy concluſion, SINDIAH marched to *Ajimere*, where he was joined by his army from *Joudhpoor*. Here he had not remained long, before he was invited, by the Rana of *Oudipoor*, to aſſiſt him in recovering his authority, and in reducing to obedience BHEEM SING, the governor of the fortreſs of *Cheitore*, who had thrown off his allegiance, and was in arms againſt his ſovereign. The Rajah of *Oudipoor*, is looked on as the head of all the *Rajpoot* tribes, and has the title of *Rana* by way of pre-eminence. His family is alſo regarded with high reſpect by the *Muſulmans* themſelves, in conſequence of a curious tradition, relating to his genealogy. He is ſaid to be deſcended, in the female line, from the celebrated ANUSHIRWAN, who was king of *Perſia* at the birth of MOHAMMED; and thus to have, in that line, a common origin with the *Seids* deſcended from HUSSEIN, the ſon of ALI. The circumſtance is remarkable, and is certainly worthy of a careful inveſtigation. For, if admitted, it proves ſo cloſe an intercourſe to have exiſted, at that time, between the natives of *India*, and the neighbouring *Pagan* nations, as, compared with the ancient prohibition of the intermixture of different caſts, to eſtabliſh the exiſting traces of a common origin.

BUT the Rana, though the firſt in dignity, is inferiour in power, to the Rajahs of *Jayanagar* and *Joudhpoor*: and the ſtrength of the fortreſs of *Cheitore*, which is ſituated on a high and rugged mountain, encouraged BHEEM SING, one of his moſt powerful vaſſals, to throw off the yoke of ſubjection.

SINDIAH readily accepted the invitation, and proceeded to *Cheitore*, where he was met by the Rana. He inveſted the fort; and although his progreſs, againſt a place of ſuch ſtrength, was neceſſarily ſlow, he at length reduced BHEEM SING to ſuch ſtreights, that he ſurrendered the fort, and ſubmitted himſelf to the

the *Rana*. SINDIAH at firſt put a garriſon into the fort, but ſoon after, delivered it over to the *Rana*, in purſuance of their previous agreement.

AFTER remaining here ſome time, SINDIAH determined, inſtead of returning to *Matra*, to proceed farther ſouthward. A variety of motives has been aſſigned for this journey, which terminated in his death, and probably contributed to accelerate that event. The meaſure was liable to ſtrong objections; and no diſſuaſives were ſpared, on the part of RANA KHAN, one of SINDIAH's oldeſt counſellors, and moſt faithful ſervants; perhaps the only one who followed his fortunes from pure perſonal attachment; conſcious of which, the prince always honoured him with the appellation of brother. The recent conqueſts in *Hinduſtan* were ſtill in a very unſettled ſtate; the ſtipulated tribute from the Rajahs of *Jayanagar* and *Joudhpoor* was yet unpaid, and thoſe chiefs would gladly have ſeized any opportunity of evading the performance of their compact; in which attempt, they might expect to be well ſupported by their warlike *Rajpoots*, who burned with impatience to ſhake off the galling yoke of the *Mahrattas*. The northern and weſtern frontiers lay expoſed to the annual incurſions of the *Sik,hs*, who might be encouraged, by the abſence of the chief, to acts of greater audacity. Laſtly, the jealouſy entertained, by the *Poona* government, of the great acceſſion of power, which had accrued to SINDIAH, from the conqueſt of *Hinduſtan*, was no ſecret; and the auxiliaries, that under the command of HOLCAR and ALI BAHADUR, were ſent him, by that court, when he was preſſed by a combination of the *Rajpoot*, *Mogul*, and *Afghan* forces, were now become, at leaſt ſuſpicious friends, if not ſecret and domeſtic foes, envious of his exaltation, and willing to embrace any occaſion of aggrandizing themſelves, at his expence.

ON the other hand, he probably conceived, that while the tranquillity of his poſſeſſions in *Hinduſtan* would

would be ſufficiently ſecured, by committing them to the protection of the ſame armies, by which they had been acquired, under the command of the leaders who had hitherto conducted thoſe armies to victory; ſome important advantages were to be obtained by his preſence at *Poona*. He hoped, by eſtabliſhing an influence in that court, to obtain an order for the recal of HOLCAR and ALI BAHADUR, and thus to be left in ſole poſſeſſion of the new conqueſts. As the expence of making and maintaining thoſe conqueſts, in the name as he pretended, and on behalf of the PESHWA, had greatly exceeded the revenues derived from them, he hoped to receive, from the treaſury of *Poona*, the balance, which, on a compariſon of accounts, was allowed to be eight crores of rupees. Laſtly, as his paternal eſtate in the *Decan* was deſtitute of ſtrong places, he was deſirous of obtaining a grant of ſome fortreſs adjoining to it, for the ſecurity of his family and poſſeſſions. Theſe were the principal heads inſiſted on, in his negociations with the court of *Poona*; and his hopes of eſtabliſhing an influence there (beſides what he might expect from the gratitude of the PESHWA and of NANA PHARNAWEES, one of whom owed the ſovereignty, and the other his office of prime miniſter, in a great degree, to SINDEAH's exertions, were founded on the reſpectable force by which he was attended; ſufficient to awe the government, and make it afraid to diſoblige him. For the reſt, he truſted to his own addreſs, in flattering the vanity, and amuſing the juvenile levity of the PESHWA, ſo as to create, in his mind, a perſonal attachment, towards himſelf.

BESIDES theſe grand objects, he had others in view, of a ſubordinate nature. He had been fourteen years abſent from *Oujein*, the capital of his jageer; and, many complaints having reached him, of mal-adminiſtration, on the part of thoſe entruſted with authority there, his preſence became neceſſary, for the rectification of abuſes.

To

To theſe political motives, were added the calls of *ſuperſtition*, to which this chief, though in other reſpects poſſeſſing a vigorous mind, and an enlightened underſtanding, ſeems to have ever lent a willing ear. Though born and educated in the *Hindu* religion, and ſcrupulouſly obſervant of all the uſages which it enjoins; he ſhewed a great complaiſance towards the inſtitutions of MAHOMMED. And here, by the way, we may obſerve, that theſe two religions have exiſted together in *Hinduſtan*, for ſo long a time, the profeſſors of both have acquired a habit of looking on each other with an eye of indulgence, unuſual in other countries, between thoſe who maintain ſuch oppoſite tenets. Thus, the *Hindu* is often ſeen to vie with the diſciple of ALI, in his demonſtrations of grief for the fate of the two martyred ſons of that apoſtle; and in the ſplendor of the pageant annually exhibited in their commemoration. He pays a reſpect to the holidays preſcribed by the *Koran*, or ſet apart for the remembrance of remarkable events in the liſe of the prophet or his apoſtles. This degree of complaiſance is perhaps not ſurprizing in the diſciple of BRAHMA, whoſe maxim is, that the various modes of worſhip, practiſed by the different nations of the earth, ſpring alike from the deity, and are equally acceptable to him. But, even they who follow the intolerant doctrines of the *Koran*, are no longer thoſe furious and ſanguinary zealots, who, in the name of GOD and his prophet, marked their courſe with deſolation and ſlaughter, demoliſhing the *Hindu* temples, and erecting moſques on their ruins. They found the patient conſtancy of the *Hindu* ſuperior to their violence; that the fear of torments and of death was unable to make him deſert the tenets which his anceſtors had handed down to him, from an unfathomable antiquity; but, that if left in the quiet poſſeſſion of theſe, he was a peaceable, induſtrious, and valuable ſubject. Accordingly, we obſerve among the *Muſulmans* of *Hinduſtan*, a great deference for the prejudices of their neighbours or dependants, of the *Hindu* perſuaſion. Particularly, in

the *hooly* or ſaturnalia of *India,* when liberty of ſpeech and action towards ſuperiors, are allowed to as great an extent, as among the ancient *Romans* ; the *Muſulmans* are ſeen to enter into the diverſion, with as much alacrity as the *Hindus* themſelves.

THUS, the *Mahratta* prince was not altogether ſingular in the attempt to unite the obſervance of both religions; but, his complaiſance, in this reſpect, was certainly carried to an unuſual length; which is accounted for in the following manner. SHAH MUNSOOR, a *Muſulman* fakeer, who pretended to the gift of prophecy, being conſulted by SINDIAH, foretold his future greatneſs; ſaying, "Go, I have given you the country, as far as *Dehly.*" Such a prediction, addreſſed to a mind ſo ambitious, ſo perſevering in the attainment of any object once propoſed to itſelf, and ſo ſtrongly tinctured with ſuperſtition, may have been very inſtrumental in bringing about its own accompliſhment. However this may be, it was fully verified; and SINDIAH naturally looked on the memory of the SHAH with great veneration. He kept his diſciple and ſucceſſor, HUBEED SHAH, conſtantly about his perſon, aſſigned him a jageer and a numerous retinue, and daily performed the ceremony of proſtration before him, and of kiſſing his feet. SHAH MUNSOOR was buried at *Beer*, a place in the NIZAM's dominions, and HUBEEB SHAH had frequently urged SINDIAH to viſit the tomb of that ſaint. Several circumſtances contributed at this time, to give weight to his advice. Beſides the veneration SINDIAH had for the prophet of his greatneſs, and the efficacy he might aſcribe to ſuch a pilgrimage, in promoting the future ſucceſs of his affairs; he was anxious for a ſon, to be the heir of his fortunes, and hoped to obtain this boon, by his devotion at the holy ſhrine. One of his favourite wives, alſo, was lingering under a fatal diſtemper, and ſhe imagined that the influence of the holy man's aſhes afforded the only proſpect of relief.

FROM *Cheitore*, he accordingly marched to *Oujein*, and finding that city expofed to frequent robberies, and other diforders, from the neglect of juftice; for the exercife of which, the perfons intrufted with the adminiftration pretended they had not a fufficient force; he gave the police and judiciary power in charge to one of his own confidential fervants, whom he fupported with a body of foldiers; leaving the management of the revenue in the hands of the former collectors. After ftaying twenty-three days, he continued his march.

THESE tranfactions occupied the fpace of a year and five months; at which time, in confequence of SINDIAH's application for that purpofe, Major PALMER received orders to join him. He determined to proceed by the way of *Gualior*, though a circuitous road, becaufe it lies through countries where SINDIAH's paffes would be refpected.

ON the 23d of *February* 1792, we marched from *Agra* to *Baad*, a fmall village, lying S 25 W diftant in a ftraight line ten and a half *Britifh* miles. The road lay through a fertile and well-cultivated country, interfperfed with clumps of mango *(Magnifera Indica)*, *Neem (Melica Azadiracht)*, and wild date *(Elate Sylveftris.)*

Feb. 24.—MARCHED to *Munniah*, S 13 W 16,8 miles. This is an inconfiderable village. On the march, we croffed two rivers, the *Utingen* and *Bán-Gunga*. On the banks of the latter ftands *Jahjow*, where there is a handfome feray, built of ftone. This village is rendered famous by two decifive actions, fought on nearly the fame fpot, clofe to it. The firft, on the 7th of *Ramazan*, A. H. 1068, or *June* 8, 1658 N. W. wherein AURUNGZEBE totally defeated his brother DARA SHEKOH; and the fecond, in the year 1119, between the two fons of AURUNGZEBE, SHAH

AALUM,

AALUM, and AZEM SHAH, in which the latter was ſlain, and left to his brother undiſputed poſſeſſion of the *Indian* empire *.

Feb. 25.—MARCHED S 12 W 6,2 miles, to *Dholpoor,* a pretty large town, ſituated within a mile of the river *Chumbul,* on the banks of which is a fort, of the ſame name with the town. The hilly country begins at this place. One remarkable conical hill, near the town, has on the top of it, a tomb, ſurrounded with a ſtone wall. The lower part of the hill is compoſed of a reddiſh *Schiſtus,* and the upper of free-ſtone.

Feb. 26.—MARCHED to *Choola-Seray.* The diſtance in a ſtraight line is only 5,8 miles, S 33 E; but the *Chumbul,* at the fort, is deep; and in order to ford it at *Keyteree,* near four miles higher up, the road makes a circuit, among hills and broken ground, ſo as to meaſure 12½ miles.

THE *Chumbul* is one of the moſt conſiderable rivers of *Hinduſtan.* Taking its riſe near the ancient city of *Mundu,* in the heart of the province of *Malwa,*

* SUCH was the information received from the people on the ſpot; but the account given by ERADUT KHAN, who was preſent in the laſt of theſe battles, proves it to have been fought nearer to *Agra.*

ON the day before the action, AZIM SHAH was encamped "between *Jahjow* and *Agra,* on a barren plain, void of water, ſo that the army was much diſtreſſed." (Memoirs, p. 30.) This muſt have been between the *Ban-Gunga,* which runs paſt *Jahjow,* and the *Utingen,* which is diſtant from it eight miles and one half, on the road towards *Agra.*

ON the morning of the battle (*Sunday* the 18th of *Rubbee ul Awul* A. H. 1119, or *June* 19, 1707 N. S.) the Prince BEDAR BUCHT, who commanded the advanced guard of AZIM SHAH's army having reached a village, near which was a ſtream of clear water, was adviſed by ERADUT KHAN to halt. This could be no other than the *Utingen,* which is the only ſtream of water between *Jahjow* and *Agra.* The Prince conſented to follow his advice, but afterwards, in the abſence of ERADUT KHAN, advanced; giving up the advantage of the water; and as he appears to have marched at leaſt an hour after this, before he met with the enemy, (Memoirs, p. 33.) we may ſuppoſe the engagement to have commenced, at the diſtance of three miles from the *Utingen,* on the ſide of *Agra.*

within

within fifteen miles of the *Nerbudda*, it purſues a north-eaſterly direction, and after waſhing the city of *Kotah*, and receiving the tribute of many ſubordinate ſtreams, at length empties it ſelf into the *Jumna*, twenty miles below *Etáwa*. The whole length of its courſe is about 440 miles. The breath of its channel, at the ford of *Keyteree*, is three quarters of a mile. That village ſtands on the ſouthern bank, which is bold and lofty. In the rainy ſeaſon, when the channel is full, the proſpect of ſuch a body of running water, bounded by hills, which riſe in a variety of fantaſtic ſhapes, forms a landſcape peculiarly intereſting to a traveller, whoſe eye has been fatigued with contemplating the uniformity of that vaſt plain, which is embraced between the *Ganges* and the *Jumna*.

Choola-Seray is a ſmall village, with a mud fort, in which reſides a collector on the part of the *Mahrattas*.

Feb. 28.—MARCHED S 29 E 17, 2 miles, to *Noorabad*, a large village, on the ſouth bank of *Sank* river, over which is a bridge of ſeven arches, very well built of ſtone. Adjoining to the village is a pretty large garden, encloſed by a ſtone wall; the work of AURUNGZEBE, as appears by the following inſcription, over the gate:

کرد باغ بناشه عالم کیر
بهر تاریخ او چو کرد سوال
فیض بخش جهان چو مهر متیر
کفت هاتف که دیده باغ جهال

١٠٧٧ هجری

TRANSLATION.

"This garden was planted by the the king AALUMGEER,
"Whoſe univerſal bounty rivals that of the Sun, in all his ſplendor:
"When he demanded a ſentence to denote its date
"An inviſible voice replied thou haſt ſeen the *garden of beauty*."

A. Hej. 1077.

THE

The last words باغ جمال contain the date, agreeably to the *Persian* notation, thus

ب	-	2.
ا	- -	1.
غ	-	1000.
ج	-	3.
م	-	40.
ا	-	1.
ل	-	30.
		1077.

answering to the year of our æra 1666.

WITHIN the garden is a monument, to the memory of GOŎNNA BEGUM, a princess celebrated for her personal accomplishments, as well as for the vivacity of her wit, and the fire of her poetical genius. Several of her lyric compositions, in the *Hindustanny* language, are still sung and admired*. She was the daughter of the Nawab ALLA KOOLI KHAN, surnamed CHINGA, or SHESH ANGOOSHTEE, from having six fingers on each hand; a Munsubdar of 5000 horse. His daughter after being betrothed to SHUJAH-UD DOWLAH, was married to GHAZEE-UD-DEEN KHAN and this rivalship is said to have in part laid the foundation of the mortal enmity which afterwards subsisted between that Vizier and the Nawab SUFDER JUNG, the father of SHUJAH-UD DOWLAH. The shrine bears this inscription ١١٨٩ آه غم گنّا بیگم "Alas! GOŎNNA BEGUM!" the letters in the original, taken as numerical characters, give the date 1189 of the Hejiree, or of our æra 1775.

* One of them is inserted by Sir WILLIAM JONES in the *Asiatic Researches*, vol. I. p. 55.

From this garden, the hill and fort of *Gualior* are ſeen, bearing S 32 E.

On this march, beſides the *Sank*, we croſſed two other rivers, the *Coháry* or *Quâree* and *Ahſin*; both fordable. The face of the country is bare, being deſtitute of trees, and almoſt without cultivation. Near the road are ſeveral ſmall forts, ſome of mud, and others of ſtone, poſſeſſed by petty chiefs, who derive a precarious revenue from predatory attacks on the unwary and defenceleſs traveller.

Feb. 29.—Marched S 27½ E, 13,2 miles, to *Gualior*, and encamped to the north-weſt of the fort. The hill on which ſtands this celebrated fortreſs, runs from N 13 E to S 13 W. It is in length one mile and ſix tenths. Its greateſt breadth does not exceed 300 yards. The height at the north end, where it is greateſt, is 342 feet. At this end is a palace, and about the middle of the fort are two remarkable pyramidal buildings of red ſtone. They are in the moſt ancient ſtyle of *Hindu* architecture, and are ſaid to have been built for the reſidence of the mother-in-law and ſiſter-in-law of a Rajah, who reigned in a very remote period, when this fortreſs was the capital of an extenſive empire. A ſtone parapet runs all round, cloſe to the brow of the hill, which is ſo ſteep, that it was judged perfectly ſecure from aſſault, till Major Popham took it by eſcalade, on the 3d *Auguſt* 1780 *: The only gate is towards the northern extremity of the eaſt ſide, from which

* The particulars of this brilliant atchievement, which reflects equal honour on that officer, who commanded in chief, and on Captain Bruce, who propoſed the meaſure, and led on the party which firſt gained a footing on the rock, are too well known, to ſtand in need of recapitulation in this place. The fort was, ſoon after delivered, agreeably to the terms of alliance, to the Rana of Gohud. But that prince having failed in the performance of his engagements to the *Engliſh* government, during the war, and afterwards deviated from the conditions of the treaty with the *Mahrattas*, wherein he had been included, was juſtly abandoned to their reſentment. Sindiah inveſted the fort, and, after a fruitleſs ſiege of many months, prevailed by corrupting a part of the garri-

which, by ſeveral flights of ſteps, you aſcend to the top of the rock. Within are ſeveral large natural cavities in the rock, which contain a perpetual ſupply of excellent water. On the outſide, about half way up, are many cells, which contain the figures of men and animals, carved in the ſame manner as thoſe excavations themſelves, out of the ſolid rock. Along the eaſt ſide, near the ſummit, runs a line of blue enamel, very freſh, and brilliant: a proof that this manufacture attained conſiderable perfection in *Hinduſtan*, at an early period.

The town, which runs along the eaſt ſide of the hill, is large, well inhabited, and contains many good houſes of ſtone, which is furniſhed in abundance by the neighbouring hills. Theſe form a kind of amphitheatre, ſurrounding the fort and town, at the diſtance of from one to four miles. They are principally compoſed of a reddiſh ſchiſtus, which ſeem to contain a large proportion of iron. Their ſurface is rugged, and they are deſtitute of vegetable productions. To the eaſtward of the town, runs the ſmall river *Soonrica*, which, at this ſeaſon, is nearly dry. At the diſtance of 700 yards from the northern extremity of the fort, is a conical hill, having on the top a remarkable ſtone building. It conſiſts of two high pillars, joined by an arch. It ſeems to be of ancient workmanſhip, but I could not learn for what purpoſe it had been erected. Beyond the river *Soonrica* is a handſome ſtone building, with a cupola covered with blue enamel, the tomb of Mahommed Ghous, a man celebrated for learning and ſanctity, in the time of the Emperor Akber. Within the encloſure which ſurrounds this monument, is a ſmall tomb, to the memory of Tan-Sein, a muſician

ſon, who admitted his troops. The Rana was ſoon after compelled to deliver himſelf into the hands of Sindiah, who ſhut him up in this fortreſs for the remainder of his life. That was not of long continuance, and his death has been uſually aſcribed to violent means. The prevailing report in the adjacent country, is that poiſon was adminiſtered, which not proving effectual, he was ſtrangled.

of

of incomparable ſkill, who flouriſhed at the court of the ſame monarch. The tomb is overſhadowed by a tree concerning which a ſuperſtitious notion prevails, that the chewing of its leaves will give an extraodinary melody to the voice.

The diſtrict depending on this town, which includes the country of *Ghod*, yields twenty-two lacs of rupees, fifteen of which are paid into the treaſury, the remaining ſeven going to the expences of collection. The adminſtration of the province was at this time entruſted by SINDIAH to AMBAJEE INGLA, one of his principal generals; in whoſe abſence, his brother KHUNDOOJEE was collector of the revenue, and governor of the fort.

A CONSIDERABLE trade is here carried on, in cloth from *Chandéri*, and in indigo. About ſeven coſs from hence, on the road to *Nirwir*, at the village of *Becreih* is a mine of iron, which is worked to conſiderable advantage. The fort itſelf, from its great ſecurity, is made uſe of by SINDIAH as the place of confinement for his ſtate priſoners; and the grand repoſitory of his artillery, ammunition, and military ſtores.

FROM *Gualior*, the ſtraight road to *Oujein* paſſes by *Nirwir* and *Seronge*. But as the Rajah who then poſſeſſed *Nirwir* was a man of treacherous character, ſtained with barbarous maſſacres, and maintained a troop of banditti, to plunder every traveller that came within their power, it was recommended to us to go by the route of *J,hanſi*.

THE progreſs of the *Mahrattas* in *Hinduſtan*, being marked, like that of a peſtilential blaſt, with deſtruction, is an object of no pleaſing contemplation. Yet, it may not be ungrateful to the benevolent reader to

hear, that the cruel Rajah of *Nirwir*, expelled from his fort, and reduced to depend for a ſcanty pittance on the bounty of the invaders, has no longer the power of doing miſchief.

On the 6th of *March* we proceeded to *Antery*, S 16 E 12,9 miles. The road lies between ranges of hills. It is ſufficiently wide; but in many parts ſo encumbered with large round ſtones, as to be with difficulty paſſable by wheel carriages. The firſt hills, towards *Gualior*, are of the ſame texture with thoſe which environ the fort; but thoſe towards *Antery* are of a quartzoſe ſtone. *Antery* is a pretty large walled town, with a fort adjoining; ſituated at the foot of the hills on the banks of the ſmall river *Déäloo*.

March 7.—Marched to *Dibborah*, S 28 E, 15 miles. The road is good, over a champaign country, pretty well cultivated. The crop of barley at this time was ripe. *Dibborah* is a ſmall village, belonging to a Rajah Pirtiput of *Pachour*. That is a fort ſituated on an oblong hill, which, as well as two other forts belonging to the ſame Rajah, was in ſight, on this day's march. The Rajah is by extraction a *Jât*. He is ſaid to have made an obſtinate reſiſtance againſt the *Mahrattas*, on their entrance into this country; but he has been compelled to pay them a tribute.

March 8.—Marched S 26½ E, 13,8 miles, to a ſpot, about three miles to the north-weſt of *Ditteah*. The tents had been ſent on, to be pitched beyond the town. But the Rajah, who is tributary to the *Mahrattas*, having fallen greatly in arrears, the approach of our people raiſed an apprehenſion, that a detachment of troops was coming from *Gualior*, to exact payment by force. Under this miſconception, the Rajah's people refuſed to permit our tents to approach nearer the town. But, no ſooner were they better informed, than the uncle of the Rajah came with a numerous retinue, to pay his reſpects

to

to the reſident; and with great eagerneſs of hoſpitality, invited us to pitch, the next day, on a ſpot cloſe to the palace.

CLOSE to the encampment of this day, is a pretty high and rugged hill of quartz, ſome pieces of which are beautifully chryſtallized. On its ſide grows the *Trophis Aſpera* of KŒNIG, called *Sahoora*. On this poor rocky ſoil, it is low and buſhy; but in the plain it is a tree of conſiderable magnitude. From an idea of its aſtringent, or antiſeptic virtue, the natives uſe little pieces of the wood, ſplit at one end into a kind of bruſh, for cleaning their teeh: the uſe of theſe they recommend as a preſerv tive againſt tooth-ach; or a remedy for that diſeaſe.

ON the ſame rocky hill grows a beautiful ſpecies of *Evolvulus*, of a blue colour, called by the natives *Sehewa*. It is the *E. alſinoides* of LINNÆUS. It was alſo found in plenty, on the argillaceous hills of *Dholpoor* and *Gualior*. Within the fort, at the latter place, it abounded ſo much, that in many ſpots, a carpet of the fineſt azure ſeemed to be ſpread on the ground.

March 9.—MARCHED through the town of *Ditteah*, which is in length above a mile and a half, and nearly as much in breadth; populous and well built; the houſes being of ſtone, and covered with tiles. It is ſurrounded by a ſtone wall, and furniſhed with gates. At the north-weſt extremity is a large building, with one large and ſix ſmaller cupolas: which was the ancient habitation of the Rajahs, and is now inhabited by ſome relations of the family: but the preſent Rajah has built a palace for himſelf, without the town, on the ſouth-eaſt ſide. It ſtands on an eminence, and commands a view of the country, as far as *Pachour* on one ſide, *Nirwir* on another, and *J,hanſi* on a third. Cloſe to this hill, is a pretty extenſive lake, on the bank of which we encamped. Bearing and diſtance from the laſt encampment S 43½ E, five miles two furlongs.

THIS town is in the province of *Bundelcund*: the inhabitants are a robuſt and handſome race of men, and wear the appearance of opulence and content. Like the other *Bundélahs*, they have the reputation of a warlike people; and about two years after our viſit, they gave a ſignal proof, how well they merit that character. GOPAL ROW BHOW, SCINDIAH'S commander in chief in *Hinduſtan*, having marched with all his army againſt *Ditieah*, to compel payment of the tribute, and exact a fine, was oppoſed by the Rajah's forces. An engagement enſued, in which the troops of *Ditteah* charged, ſword in hand, the veteran battalions of DE BOIGNE, which were commanded by Major FRIMONT, an officer of ability and experience. The *Bundélahs* ſhewed no fear of the muſket and bayonet, and there were ſeveral inſtances of grenadiers cut down while their bayonets were buried in the breaſt of the aſſailant's horſe. The brigade loſt 300 men, in this attack, and Major FRIMONT himſelf aſſured me, that nothing but a continual diſcharge of grape-ſhot, from the guns, preſerved it from utter deſtruction.

THE diſtrict yields a revenue of nine or ten lacks of rupees annually, ſubject to the payment of a tribute to the *Mahrattas*; the amount of which varies with their power to exact it.

THIS evening, the reſident received a viſit from the Rajah, whoſe name is SUTTERJET, a man about forty years of age, above ſix feet high, of an athletic form, and graceful deportment; with a countenance not unpleaſing, except that the extenſive uſe of opium has given him an air of ſtupidity. Notwithſtanding his habits of intoxication, and inordinate indulgence in ſenſual pleaſures, he is fond of athletic amuſements, particularly the chace. His activity and courage, in the attack of the boar, the *neel-gaw* (antilope *picta* of PALLAS, or white footed antilope of PENNANT) here called *roz*, and of the tyger, with all of which the neighbouring foreſt abound, are greatly extolled.

THE

THE following day we halted to return the Rajah's visit, and on the 11th *March*, marched to *J,hansi,* and encamped to the S W of the fort. Course S 36½ E, distance 15½ miles. This is a considerable town, though smaller than *Ditteah*. It is commanded by a stone fort on a high hill; to the south-east of which, at the distance of five or six hundred yards, is another hill, nearly on a level with the fort. The district dependent on this town, which yields about four lacs of rupees per annum, belongs to the PESHWA, and having been, for fifty years, uninterruptedly in his possession, it is quieter and better cultivated than most of the neighbouring territories, which have undergone frequent changes. On this account, it is frequented by the caravans from the *Decan*, which go to *Furrukhabad*, and the other cities of the *Dooáb*. Hence an afflux of wealth, which is augmented by a considerable trade in the cloths of *Chandéri,* and by the manufactures of carpets, and of bows, arrows, and spears, the principal weapons of the *Bundélah* tribes.

THE Soubahdar of *J,hansi,* ROGONAT'H HARRY, commonly resided at *Burwa-Sagur*, and left the care of *J,hansi* to his younger brother SHEURAM BHOW. This gentleman paid the resident a visit, on the evening of his arrival. He is a tall, handsome man, and of genteel demeanour. At his request we halted next day, and returned his visit in the evening. He received us at his house in town, where we saw his brother LITCHMUN ROW, elder than SHEURAM BHOW, but younger than the Soubahdar. He was merely in a private capacity. Formerly he was in SINDIAH's service, and about two years before this period, was sent into *Bundélcund,* with a considerable force and twenty-two guns. But he was defeated by NOONI ERJUN SING, a *Bundélah* chief, with the loss of all his guns and baggage.

March 13.—MARCHED S 56½ E, twelve miles five furlongs, to *Burwa Sagur,* so called from a rivulet, named the *Berwa,* which runs past it and by embankment, is

 made

made to form a very large pond (in *Hindui*, *Sagur*) at the back of the fort or caſtle. The village is ſmall, but contains ſeveral good houſes, and the fields about it are very well cultivated. The caſtle, in which the the Soûbahdar reſided, reſembles an old Gothic building. It was built by an ancient Rajah of *Ouncha*, and is ſaid to be one of fifty-two forts, for the building of which he gave orders on one day. This ancient city of *Ouncha*, lay on our right, on this day's march ; it is ſituated on the banks of the *Betwa*, about nine miles S E by S from *J,hanſi*. The Rajah of *Ouncha* was formerly the head of the *Bundélah* tribes, from whom the other Rajahs received the *teeka*, or token of inveſtiture. But his revenue has, by various defalcations, been reduced to one lac of rupees, and his conſequence has proportionably declined. The name of the preſent Rajah is BICKERMAJEET.

ON this day's march, we paſſed the *Betwa*, for the firſt time. This river, from its force, ſouth of *Bopal*, to its confluence with the *Jumna*, below *Calpee*, deſcribes a courſe of 340 miles, in a north-eaſterly direction. Its bed, where we croſſed, was three furlongs in breadth ; ſandy, and full of round ſtones. The water, at this ſeaſon, is only knee-deep ; but in the rains, it ſwells to ſuch a height as to be impaſſable. Two miles from *Burwa-Sagur*, we paſſed the *Bhood Nullah*, on a bridge of eight arches, built by the preſent Soubahdar.

ON our arrival, we were agreeably ſurprized to receive from the Soubahdar, a preſent of cabbages, lettuce, celery, and other productions of an *European* garden. In the evening, the Soubahdar paid us a viſit; he appeared to be about ſixty years of age, rather below the middle ſtature; his countenance beſpoke intelgence, and his manners were pleaſing. Having had occaſion, on account of ſome bodily infirmity, to repair to the *Engliſh* ſtation of *Kanhpoor*, for medical aſſiſtance, he had contracted a reliſh for *European*

manners

manners and customs. He had discernment enough to perceive our superiority in arts and science over his countrymen; and possessing a spirit of liberal enquiry, and an exemption from national prejudices, which is very uncommon among the natives of *Hindustan*, he was very desirous of gaining a knowledge of our improvements. Next morning, when we returned his visit, he received us in an upper room of the castle, which, instead of the *Hindustany muslum*, was furnished with chairs and tables, in the *European* manner. He showed us several *English* books, among which was the second edition of the *Encyclopædia Britannica*. Of this he had got all the plates neatly copied by artists of his own. To get at the stores of science which these volumes contain, he had, even at that advanced period of life, formed the project of studying the *English* language. He expressed great anxiety to procure a teacher, or any book that could facilitate his pursuit; and was highly gratified by Lieutenant M'Pherson's presenting him a copy of Gilchrist's, Dictionary. He entertained us with several tunes on a hand-organ, which he had got at *Kanhpoor*; and exhibited an electrical machine, constructed by a man in his own service. The cylinder was a common table shade; with this he charged a vial, and gave pretty smart shocks, to the no small astonishment of those who were the subjects of his experiments, and of the spectators. As the weather was very dry, the operation succeeded remarkably well. He even proposed sensible queries, on the nature of the electric fluid, and the parts of the phial in which the accumulation took place; as, whether in the glass, or the coating, &c. which showed that he did not look on the experiments with an eye of mere childish curiosity, which is amused with novelty; but had a desire to investigate the cause of the phænomena. I am sorry to add, that this man, being, about two years ago, seized with some complaint, which he considered as incurable, repaired to *Benares*, and there drowned himself in the *Ganges*.

March

March 15.—MARCHED S 9 E, 11,3 miles, to *Pirtipoor*, a ſmall village, belonging to the Rajah of *Ouncha*. The road is ſtony, and much encumbered with thorns.

March 16.—MARCHED S 17 E, 13 miles, to *Bumouree*. The road more open, eſpecially towards the end. We encamped on a plain, very prettily ſhaded with clumps of trees. The village ſtands upon a riſing ground, the houſes are of ſtone, covered with tiles; the ſtreets wide and clean.

March 17.—MARCHED S 25 E, 11,3 miles, to *Belgaung*. The road lies through a wood, in the beginning much encumbered, afterwards more open. In the woods, we met with the *Bombax Goſſypium* of LINNÆUS, a beautiful tree, of middling ſize, which grows ſtraight, and has but few branches, all at the top. It bears large yellow flowers, in cluſters, at the ends of the branches. At the time when I ſaw it, it had no leaves.

March 18.—MARCHED S 2 W, 10,05 miles, to *Tearee*. The road, in the beginning, encumbered with bruſh-wood, but afterwards clear, and the country cultivated. The crop of wheat and barley was nearly ripe. This is a large village, with a fort, on an adjoining height. It is in the diſtrict of the *Ouncha* Rajah. *Chandéri* is reckoned ſixteen coſs from hence, and *Chatterpoor* twenty-five.

March 19.—MARCHED S 23½ W, 11,97 miles, to *Marounee*, a pretty large village, with a fort, belonging to RAM-CHUND, the Rajah of *Chandéri*, which is diſtant fourteen coſs, towards the N. W. The Rajah lives in a kind of retirement at *Oudh*, and has left the adminiſtration in the hands of his ſon, who pays a tribute to the *Mahrattas*. The road was good, except at paſſing the ſmall river *Jumnâr*, the banks of which are ſteep, and its bed full of large round ſtones.

Alſo,

Alſo, towards the end of the march, the ground is broken into holes. The country open, and pretty well cultivated.

March 20.—MARCHED S 56 W, 8,07 miles to *Sindwáha*, through a country the moſt completely cultivated that I have ever beheld in *Hinduſtan*. The plain, as far as the eye can reach, was covered with a luxuriant crop of wheat and barley. It is in the diſtrict of *Chandéri*, but belongs to a *Rajpoot* chief, who is in ſome meaſure independent of the Rajah, only paying *chout* to the *Mahrattas*. Near the village is a pretty large tank, banked in with ſtone. To-day we croſſed the ſmall river *Jámny*, and a nullah. On the banks of this nullah, I found the *D,hawry* (*Aſi. Reſ.* IV. 42.) which I learn from Doctor ROXBURGH is the *Lythrum fruticoſum* of LINNÆUS *.

March 21.—MARCHED S 21¼ W, 9,32 miles to *Nárat*. Road interſected with ſeveral nullahs, and broken ground: the country cultivated, but not ſo well as yeſterday. This village is ſituated at the foot of the hills which ſeparate *Bundelcund* from *Málava*. It belongs to the *Bundéla* Rajah of *Gur-cootah*, but pays one-fourth of the revenue to the *Mahrattas*, who have a Pandit here, on the part of the Soubahdar of *Great Sagur*, for the collection of it.

March 22.—MARCHED S 23½ W, 8,35 miles, to *Maltown*. The road lies through a paſs in the hills, the firſt part narrow, ſteep, much encumbered with ſtones and thick jungle. Above the ghaut there is a good road, with a gentle declivity all the way to *Maltown*, and a mile beyond it, where we encamped.

* The Editors of Dr. ROXBURGH's work refer it to the genus *Griſlea*, with the trivial name of *tomentoſa*, which ſeems to have been applied from ſome miſconception, as the leaves, though whitiſh beneath, are ſmooth.

This

This is a large village, with a ftone fort. It belongs to the fame Rajah as *Narát*, and pays *chout* in a fimilar manner.

March 23.—MARCHED S 64 W, 11,92 miles, to *K,hemlafa*, a large walled town, and adjoining to it a fort, built on a hill. It belongs to the diftrict of *Sagur*, which is diftant about feventeen cofs to the fouth-eaftward. The Soubahdar of *Sagur* is fon to BALAJEE of *Calpee*. The diftricts under BALAJEE, his brother GUNGAD,HER, and his fon, yield a revenue of about thirty lacks of rupees, of which nine are remitted to *Poona*.

March 24.--MARCHED S 63½ W, 10,25 miles, to *Rampoor*, through a country level and well cultivated. The foil is a black vegetable mould, and by the road fide, is cracked, forming holes. Many villages are feen at a diftance, on both fides of the road. The grain was in great part got in.

March 25.—MARCHED N 85 W, 10,62, miles, to *Koorwey* and *Boráfo*, two towns, almoft united, on the banks of the *Bétwa*. They are of confiderable fize, and at the former is a large ftone fort. They are inhabited by *Patans*, who fettled here about a hundred years ago, in the time of AURUNGZEBE. Their chief and the head of the prefent *Bopál* family, were brothers, and obtained their refpective eftablifhments at the fame time. The prefent *Nawáb* is HOORMUT KHAN. His revenue is faid to be between one and two lacs of rupees, but it is fequeftered, for the payment of a debt to the *Mahrattas*; fo that he has nothing more, for his expences, than they choofe to allow him. The road was good, the country well cultivated.

March 26.—MARCHED S 23½ W, 11,3 miles, to *Kirwah*. Croffed the *Bétwah* clofe to yefterday's encampment. The banks are fteep, and the bed ftony. The foil adjoining is a black mould; but, two miles and

and a half farther on we entered on a clay, the ſurface of which was covered with reddiſh ſtones, that ſeemed to contain iron. This extended for a little way on each ſide of the road, where the ground was high, and appeared to be little capable of cultivation; but, at ſome diſtance, the fields which lay lower were covered with grain. This kind of ſoil continued for two miles, and terminated at a ſmall nullah, near the banks of which is a plantation of date trees *(Elate Sylveſtris)*. For the remaining part of the way, the ſoil is the ſame black mould that we had ſeen in the laſt marches. The grain was in great part cut down, and carrying into the villages. The road good, country well cultivated. *Kirwah* is a middle-ſized village, in the diſtrict of *Koorwey*. At the diſtance of three coſs to the ſouth-eaſtward is ſeen a remarkable conical hill, at the foot of which is a large town, named *Odipoor*, which belongs to SINDIAH. There was formerly a fort on the hill, but that has fallen to ruin, or been deſtroyed.

March 27.—MARCHED S $5\frac{1}{2}$ W, 8,12 miles, to *Baſouda*, a large town, belonging to the diſtrict of *Bhilſah*. The road was, in general, good. The ſoil alternately black mould, and a reddiſh clay, with ſtones of a ferruginous appearance. Where the black mould is, the country is well cultivated: the other ſeems unſuitable to vegetation, and conſequently remains waſte.

March 28.—MARCHED S $13\frac{3}{4}$ W, 14,3 miles, to the ſmall river *Gulcutta*, or cut-throat, ſo named from murders committed on its banks: the road good; ſoil, a black mould: country well cultivated; grain almoſt all cut down.

March 29.—MARCHED S 28 W, 10,53 miles, to *Bhilſah*. Road good, ſoil as before. The wheat harveſt, which is the principal grain of the *Rubbe*, was got in. They cultivate very little barley. In the *Khereef* they

they have a good deal of rice, alſo *Jooár (Holcus Sorghum* LINN.) and *Moong (Phaſeolus Mungo)* but no *Bajerah (Holcus ſpicatus)*. Celebrated as this place is for tobacco, we could get none of a good quality. The crop of the former year had been all exported, and the new one was too freſh to be fit for uſe. The town, or as it is called, fort of *Bhilſah,* is encloſed with a ſtone wall, furniſhed with ſquare towers, and a ditch. The ſuburbs without the wall are not very extenſive, but the ſtreets are ſpacious, and they contain ſome good houſes. The town is ſituated nearly on the ſouth-weſt extremity of the diſtrict, where it is contiguous to that of *Bopál.* To the eaſtward of the town, at the diſtance of ſix furlongs from the wall, is a high rock, very ſteep, on the top of which is a *Durgah,* conſecrated to the memory of a ſaint, named SEID-JELAL-UD-DEEN BOKHARI. On the top of this rock I found a pretty large tree of the *Sterculia Urens* (ROXBURGH'S *Indian* Plants, Vol. I. No. 24.) here called *Curheree.*

April 1.—MARCHED S 64 W, 7,82 miles, to *Goolgaung*, a ſmall village, in the territory of *Bopál.* The road lies acroſs the *Bétwah*, the bed of which is rocky, very uneven and ſlippery. The remainder was a good carriage road. The laſt part lies between hills, which abound with a great variety of vegetable productions. Among theſe, we found *Téndu (Dioſpyros Ebenum) Acôr* (*Alangium. Hort. mal.* iv. 17,26.) and a ſhrub for which I could get no name at this place. In the *Dooab* it is called *Binna* or *Ponga.* It is the *Ulmus integrifolia* ROXBURGH'S *Indian* Plants, Vol. I. No. 78.

April 2.—MARCHED S 64 W, 7,82 miles, to *Amáry*, a village in the *Bopâl* diſtrict, ſituated between two pretty high hills, and partly built on the face of the moſt ſoutherly of the two. In the way lies the ſmall river G,*hora-Puchar*, ſo named from the great number of large, round, ſlippery ſtones, with which its bed is filled,

filled, rendering the paſſage dangerous for horſes. The road to that river is through a jungle, and in ſeveral parts uneven; the remainder good, though a cultivated country.

April 3.—MARCHED S 51$\frac{1}{4}$ W, 16,11 miles to *Bopâl.* About four miles from *Amáry* is a ſteep paſs, up-hill, for the ſpace of about twenty paces. The remainder of the road is good. The firſt part of it is through a thick jungle, the laſt through a cultivated country. The town of *Bopâl* is extenſive, and ſurrounded with a ſtone wall. On the outſide is a large gunge, with ſtreets wide and ſtraight. On a riſing ground, to the ſouth-weſt of the town, is a fort, called *Futteh gurh,* newly erected, and not yet quite finiſhed. It has a ſtone wall, with ſquare towers, but no ditch. The ſpot on which it is built is one ſolid rock. To the ſouth-weſt, under the walls of this fort, is a very extenſive tank or pond, formed by an embankment, at the confluence of five ſtreams, iſſuing from the neighbouring hills; which form a kind of amphitheatre round the lake. Its length is about ſix miles, and from it the town has the addition of *Tâl* to its name. Theſe hills, and others in the neighbourhood, contain a ſoft free ſtone, and a reddiſh granite, the latter of which ſeems well calculated for buildings that will reſiſt water, and the injuries of the weather: it is accordingly uſed in the new embankment which is now building at the eaſt end of the lake. From this part iſſues the ſmall river *Patara*, and it is ſaid that the *Betwah* takes its riſe from another part of the ſame.

THE town and territory of *Bopâl* are occupied by a colony of *Patans*, to whom they were aſſigned by AURUNGZEBE. The preſent Nawab MOHAMMED HYAT, a man about ſixty years of age, had from indolence, love of pleaſure, want of capacity or devotion (for I have heard each of theſe reaſons aſſigned) reſigned the whole adminiſtration into the hands of his Dewan (ſince

(ſince dead), who was born a *Brahmen*, but purchaſed, when a child, by the Nawab, and educated in the *Muſſulman* faith.

The revenue of *Bopâl* is eſtimated at ten or twelve lacs of rupees. It does not pay any regular tribute to the *Mahrattas*, but from time to time a handſome preſent is given, to conciliate their friendſhip. The people ſeem to be happy under the preſent government, and the Dewan, by his hoſpitality, and the protection afforded to ſtrangers, had induced the caravans, and travellers in general, to take this road between the *Decan* and *Hinduſtan*.

April 7.—Marched S 71 W, 14 miles, to *Pundah*, a pretty large village, in the *Bopâl* territory, and ſituated on the frontier. The firſt two miles paſt the town, to the edge of the great lake, were very ſtony; afterwards the road was good, the ſoil rich, and the country well cultivated. The crop now entirely got in.

April 8.—Marched S 78 W, 9,47 miles, to *Sehore*, a conſiderable town, belonging to the *Mahratta* chief Eetul-Row. His deputy, Gopal Row, who reſided here, had the collection of four pergunnahs, *Sehore*, *Aſhtah*, and two others, amounting, in all, to about three lacs of rupees.

Sehore is ſituated on the banks of the little river *Rootah-Seein*, and is ſurrounded with a large grove of mango and other trees. Here is a conſiderable manufacture of ſtriped and chequered muſlins. The road was good, ſoil a black mould, but the cultivation partial.

April 9.—Marched N 77 W, 11,19 miles, to *Furher*, a town belonging to the heirs of the *Mahratta* chief Naroo-Shunker. It is in the pergunnah of *Shujawulpoor*, which is divided from that of *Sehore* by the river

river *Párbutty*. The road good, and ſoil a fine black mould; but there is a good deal of waſte land near the road ſide.

April 10—MARCHED N 50 W, 16,55 miles, to *Shujáwulpoor*. Road good: ſoil the ſame black mould as before. For the firſt ten miles, very little cultivation, afterwards a good deal.

Shujáwulpoor is a large town, ſituated on the north-eaſt bank of the river *Jamneary*. It contains a fort, or walled town, and without the wall, a good bazar, in which are many large, well-built houſes. The country is liable to the depredations of a ſet of robbers, called *Graſſiah*, which in ſome meaſure accounts for the inferior ſtate of cultivation. This is the head town of a pergunnah of eight lacs of rupees, held in jageer, from the PESHWA, by the heirs of NA'ROO-SHUNKER. They were in camp with SINDIAH, and rented the diſtrict to aumils, who were changed every two or three years. Thoſe men collected what they could, oppreſſed the ryots and brought depopulation on the country. About twelve years ago this diſtrict was under the management of APPAH-K'HANDEY RAW, and then it was well peopled and cultivated.

THIS is a conſiderable market for ſtriped muſlins, doputtahs, &c. Opium is cultivated to ſome extent, and is ſaid to be of a good quality.

April 11—MARCHED N $75\frac{1}{2}$ W, 11,87 miles, to *Beinſround*, a ſmall village in the diſtrict of *Shujáwulpoor*. Road good; ſoil as before, country more cultivated than yeſterday.

IN this country are many *Mawah* trees (*Baſſia latifolia* ROXB. *Ind.* plants Vol. I. No. 19, *Madhuca*, *Aſiat.*

 Reſ.

Ref. vol. I.) They were now in flower, and as the number of feeds in the ripe fruit is very uncertain, which has caufed fome confufion, I this day examined the germina of twenty-one flowers. Thirteen had the rudiments of eight feeds, fix of nine, and two of feven. The ftamina were 24, 25, and 26, but I have fomerly feen flowers with only 16.

April 12.—MARCHED weft 17,89 miles, to *Shahjeh npoor.* The road was good, the foil as before, but the country appeared to have remained long uncultivated. It is all overgrown with brufhwood, among which the *Plafs (Butea frondofa)* and wild date *(Elate fylveftris)* hold the principal place.

Shahjehanpoor is a confiderable town, and head of a pergunnah, belonging to SINDIAH. It lies on the banks of the river *Sagurmuttee.* About half a mile to the weftward of the town is a conical hill, which is confpicuous at a great diftance.

April 13.—MARCHED S 59½ W, 16,66 miles, to *Turána*, a town and head of a pergunnah, belonging to AHELIAH BAI. The firft thirteen miles we met with very bad road, among rocks and broken ground, incapable of cultivation. The remainder of the road was good, through a cultivated country. In the neighbourhood of *Turána*, we found an avenue of young trees of confiderable extent, which we were informed was planted by AHELIAH BAI. A tafte for improvements of this nature is uncommon among *Mahrattas*; and this gave me a favourable impreffion of that princefs's government, which was confirmed by farther enquiry.

April 14.—MARCHED S 48½ W, 12 miles, to *Tajpoor*, a village belonging to SINDIAH. The road ftoney, and the ground full of holes. Little cultivation.

April

April 15.—MARCHED S 75½ W, 10,37 miles, to *Oujein.* The road good. This city called in *Sanſcrit, Ujjaini,* and *Awinti,* or *Avanti,* boaſts a high antiquity. A chapter in the *Poorans* is employed on the deſcription of it. It is conſidered as the firſt meridian by the *Hindu* geographers and aſtronomers, ſo that its longitude from our *European* obſervatories is an object of ſome curioſity. By a medium of eleven obſervations of Jupiter's firſt and ſecond ſatellites (taking the times in the ephemeris as accurate) I make its longitude from *Greenwich* 75° 51′ E. Its latitude, by a medium of eight obſervations 23° 11′ 13″ N.

BUT the city which now bears the name is ſituated a mile to the ſouthward of the ancient town, which, about the time of the celebrated VICRAMADITTYA was overwhelmed, by one of thoſe violent convulſions of nature which, from time to time, alter the ſurface of our globe. The following narrative of this event, involved in a cloud of fable, is handed down by the *Brahmens.* A certain deity, named GUNDRUFSEIN, was condemned, for an offence committed againſt the god INDER, to appear on earth, in the form of an aſs, but on his entreaty, he was allowed, as a mitigation of the puniſhment, to lay aſide that body in the night, and take that of a man. His incarnation took place at *Oujein,* during the reign of a Rajah, named SUNDERSEIN, and the aſs, when arrived at maturity, accoſting the Rajah in a human voice, proclaimed his own divine origin, and demanded his daughter in marriage. Having, by certain prodigies, overcome the ſcruples of the Rajah, he obtained the object of his wiſhes. All day, in the form of an aſs, he lived in the ſtable, on corn and hay; but when night came on; laying aſide the aſs's ſkin, and aſſuming the form of a handſome and accompliſhed young prince, he went into the palace, and enjoyed, till morning, the converſation of his beauteous bride. In proceſs of time, the daughter of the Rajah appeared to be pregnant, and as her huſband, the aſs, was deemed incapable of producing

ſuch a ſtate in one of the human ſpecies, her chaſtity became ſuſpected. Her father queſtioned her upon the ſubject, and to him ſhe explained the myſtery. At night the Rajah, by her directions, hid himſelf in a convenient ſituation, and beheld the wonderful metamorphoſis. He lamented that his ſon-in-law ſhould ever reſume the uncouth diſguiſe, and to prevent it, ſet the aſs's ſkin on fire. GUNDRUFSEIN perceived it, and though rejoiced at the termination of his exile, denounced the impending reſentment of INDER, for his diſappointed vengeance. He warned his wife to flee; for, ſaid he, my earthly tenement is now conſuming, I return to heaven, and this city will be overwhelmed with a ſhower of earth. The princeſs fled to a village at ſome diſtance, where ſhe brought forth a ſon, named VICRAMADITTYA, and a ſhower of earth falling from heaven, buried the city and its inhabitants. It is ſaid to have been cold earth, and to have fallen in ſmall quantity upon the fields all around, to the diſtance of ſeveral coſs, but to a great depth on the towns.

ON the ſpot where the ancient city is ſaid to have ſtood, by digging to the depth of from fifteen to eighteen feet, they find brick walls entire, pillars of ſtone, and pieces of wood, of an extraordinary hardneſs. The bricks, thus dug up, are uſed for building, and ſome of them are of a much larger ſize than any made in the preſent, or late ages. Utenſils of various kinds are ſometimes dug up in the ſame places, and ancient coins are found, either by digging, or in the channels cut by the periodical rains; having been waſhed away, or their earthly covering removed by the torrents. During our ſtay at *Oujein*, a large quantity of wheat was found by a man in digging for bricks. It was, as might have been expected, almoſt entirely conſumed, and in a ſtate reſembling charcoal. The earth of which this mound is compoſed, being ſoft, is cut into ravines, by the rains; and in one of theſe, from which ſeveral ſtone pillars had been dug, I ſaw a ſpace, from twelve to fifteen feet long, and ſeven or

2 eight

eight high, compoſed of earthen veſſels, broken, and cloſely compacted together. It was conjectured, with great appearance of probability, to be a porter's kiln. Between this place and the new town, is a hollow, in which tradition ſays, the river *Sipparah* formerly ran. It changed its courſe, at the time the city was buried, and now runs to the weſtward.

ADJOINING to theſe ſubterraneous ruins, on the preſent bank of the *Sipparah* is the cave, or ſubterraneous abode of the Rajah BHIRTERY. Before the gate of the court are two roes of ſtone pillars, one running from eaſt to weſt, the other from ſouth to north. You enter the court from the ſouth-ward; within it are the entrances of two caves, or diviſions of the palace. The outermoſt enters from the ſouth; and is ſunk about three feet under ground. From this entrance (which is on the ſide) it runs ſtraight eaſt, being a long gallery, ſupported on ſtone pillars, which are curiouſly carved, with figures of men in alto relievo. Theſe figures, however, are now much effaced.

THE inner apartment alſo enters from the ſouth. This is a pretty wide chamber, nearly on the level of the ground, the roof ſupported on ſtone pillars, over which are laid long ſtones, in the manner of beams. On the north ſide, oppoſite to the entrance, is a ſmall window, which throws a faint light into the apartment. It looks down upon the low ground, beneath the bank, on which the building is ſituated. On the left hand, or weſt ſide of the apartment, is a ſmall triangular opening in the ſtone pavement. Through this you deſcend, about the height of a man, into an apartment truly ſubterraneous, and perfectly dark. This is alſo ſupported on ſtone pillars, in the ſame manner as the upper one. It firſt runs eaſtward, and then turns ſouth. On the left hand ſide are two chambers, about ſeven

feet by eight. At the ſouthern extremity is a door, which probably led into ſome farther apartment, but it is ſhut up with earth and rubbiſh. The fakeers who reſide here ſay a tradition exiſts, that one ſubterraneous paſſage went from hence to *Benares*, and to *Hurdwar*: and they tell us, that this door was ſhut up, about twelve or fourteen years ago, by the government, becauſe people ſometimes loſt themſelves in the labyrinth.

THIS is ſaid to be the place in which the Rajah BHIRTERY, the brother of VICRAMADITTYA, ſhut himſelf up, after having relinquiſhed the world. But there are various and diſcordant accounts of its conſtruction and date. By ſome, it is ſaid to have been conſtructed, in its preſent form by BHIRTERY himſelf. By others, theſe inner apartments are ſaid to have been the *mahl*, or private chambers of GUNDRUFSEIN, and the colonnade before the gate to have been his public hall of audience, or *Dewan-Aum*. That this eſcaped the general wreck of old *Oujein*, and either was not affected, or ſunk gently down, ſo as to retain its form, though thrown down under the level of the ground.

SUCH are the preſent appearances of this ancient city, which above 1800 years ago, was the ſeat of empire, of arts, and of learning; and it is a taſk worthy of the preſent lovers of ſcience to diſcover the means by which this great revolution has been effected. There are not, as far as my inſpection goes, any traces of volcanic ſcoriæ among the ruins, nor are there in the neighbourhood any of thoſe conical hills, which we might ſuppoſe to have formerly diſcharged fire large enough to produce this effect. As tradition relates, that the river, on that occaſion changed its courſe, an inundation from it might be conſidered as the cauſe. And in fact this river, while we were at *Oujein*, did ſwell to ſuch a height, that great part of the preſent town, though ſituated on a high

bank, was overflowed, many houſes within it, and whole villages in the neighbourhood, were ſwept away by the torrent. But yet the ſize of the ſtream, and the length of its courſe, the ſource being only at the diſtance of fourteen coſs, ſeem unlike to furniſh water enough to produce ſo complete a revolution. Therefore, we muſt conſider the change of its courſe, in conformity to the tradition, rather as the effect than the cauſe of that event. An earthquake appears one of the moſt probable cauſes ; and the only objection to it is the entire ſtate in which the walls are found. They are ſaid to be found entire, but I am not able from inſpection to determine whether or not they are ſo entire as to render the ſuppoſition of an earthquake improbable. The only remaining cauſe which I can think of, is looſe earth or ſand blown up by a violent wind. We have inſtances in *Europe* of whole pariſhes being buried by ſuch an accident. The ſoil of the province of *Málava*, being a black vegetable mould, is unfavourable to this ſuppoſition ; but even this, when dry is very light, friable earth : and it may have been greatly meliorated in ſo long a period of ages. If we might be allowed to call into our aid a tradition, which, though diſguiſed in fable and abſurdity, has probably a foundation in fact, it would be favourable to this hypotheſis. For none of the other cauſes would ſo much reſemble a ſhower of earth as this ; and ſand driven by the wind would naturally be accumulated to the greateſt height, on the towns, where the buildings would reſiſt its farther progreſs in the horizontal direction.

THE preſent city of *Oujein* is of an oblong form, and about ſix miles in circumference, ſurrounded by a ſtone wall, with round towers. Within this ſpace, there is ſome waſte ground, but the inhabited part occupies by far the greateſt portion ; it is much crowded with buildings, and very populous. The houſes are built partly of brick, partly of wood. But even of the brick houſes, the frame is firſt conſtructed of wood, and

and the interſtices filled up with brick. They are covered, either with lime terrace, or with tiles. The principal bazar is a ſpacious and regular ſtreet paved with ſtone. The houſes on each ſide are of two ſtories. The lower, to which you mount from the ſtreet by five or ſix ſteps of ſtone, are moſtly built of ſtone, and are taken up with ſhops. The upper, of brick or wood, ſerve for the habitations of the owners.

The moſt remarkable buildings are four moſques, erected by private individuals, and a great number of *Hindu* temples. of theſe the moſt conſiderable is a little way on the outſide of the town, at *Unk-pât*, a place held in great veneration, as being that where KREESHEN and his brother BULBUDDER, or BILDEO, received the rudiments of their education. Here is a ſtone tank, with ſteps leading down to the water's edge: and this is ſaid to be of great antiquity. But it has been encloſed with a ſtone wall, and two temples erected within the encloſure about twenty-five years ago, by RUNG RAW APPAH, of the tribe *Pawâr*. Theſe temples are ſquare, with pyramidal roofs. That on the right, as you enter the gate, contains the images of RAM, LITCHMUN, and SITA, in white marble; and that on the left, thoſe of KREESHEN and RADHA, the firſt in black, and the ſecond in white marble. All theſe figures are well executed.

SINDIAH'S palace in the city, which is yet unfiniſhed, is an extenſive and ſufficiently commodious houſe, but without any claim to magnificence. And it is ſo much ſurrounded with other buildings, as to make very little appearance on the outſide. Near it is a gate, which being all that remains of a fort ſaid to be built ſoon after the time of VICRAMADITTYA, may be conſidered as a good ſpecimen of the ancient *Hindu* architecture.

WITHIN

WITHIN the city, and near the eaſtern wall, is a hill of a conſiderable height, on the top of which is a *Hindu* temple of MAHADEO, and adjoining to it the the tomb of a *Muſulman* ſaint, named GOGA SHEHEED. This hill is conſpicuous from a diſtance, and a ſpectator on the top of it commands an extenſive proſpect on every ſide. To the northward he ſees, at the diſtance of four miles, the rude and maſſy ſtructure of CALYDEH, an ancient palace, built on an iſland in the *Sipparah*, by a king of the family of GOUR *. There are two ſquare buildings, each covered with a hemiſpherical cupola, and divided below into eight apartments, beſides the ſpace in the centre. The communication with the land is made by a ſtone bridge over one of the branches into which the *Sipparah* is here divided. Below the bridge are ſeveral apartments conſtrncted on a level with the water ; and the rocky bed of the river is cut into channels of various regular forms, ſuch as ſpirals, ſquares, circles, &c. to which, in the dry ſeaſon the current is confined. Turning to the weſtward, he traces the winding courſe of the *Sipparah*, through a fertile valley, where fields of corn and clumps of fruit trees interſecting, diverſify the proſpect, till his attention is arreſted by the fort of *Beiroun-gurh*, ſituated cloſe on the top of the oppoſite bank. It is about a quarter of a mile in length, ſurrounded by a rampart of earth, and contains an ancient temple dedicated to the tutelary divinity of the place, whoſe name it bears. Still farther up the ſtream, and nearly oppoſite to the middle of the town, are the gardens of ABHA-CHITNAVEES and RANA KHAN. On the latter no decoration of art has been ſpared ; the former wantons in all the luxuriance of nature. Exactly over theſe, at the diſtance of half a mile from the river,

* A deſcription of this extraordinary fabric is inſerted in the Oriental Repertory, V. I. p. 266, from a letter of Sir W. MALET, dated at *Oujein*, 13th *April*, 1785. The author gives an extract from a hiſtory of *Malava*, which proves the building to be the work of Sultaun NASIR-UD-DEEN-GILGEE, ſon of GHEAS-UD-DEEN, who aſcended the throne of *Malava* in the year of the *Hejira* 905, and reigned eleven years and four months.

river, is a grove of trees, on a rising ground. It contains the tomb of another saint, named SHAH DA'WUL, but is more remarkable for having been the scene of a bloody action, about thirty years ago, between SINDIAH and one of his Sirdars, named RAGOO, who, from having the command of certain troops of horse, was called PAGIH. This officer had been detached by SINDIAH, with a considerable force, to levy contributions in *Oudipore*, and having received the money, refused to account for it. His master confined his family, who had remained in *Oujein*, in consequence of which, RAGÓO marched at the head of 30,000 men, to attack SINDIAH, who was in *Oujein*, with only five or six thousand. With this inequality the fight began, on the plain adjacent to SHAH DAWUL's Durgah; but SINDIAH was joined by 6000 *Goosains*; and a chance shot having killed RAGOO, his adherents were routed.

THE prospect on this side is bounded by a ridge of hills, at the distance of about three miles. It runs from N N E, to S S W, and is seven miles in length; these hills are chiefly composed of granite, and from them the stone employed in building is supplied. But they are covered with vegetable mould to a sufficient depth to admit of cultivation.

To the south-west is a wide avenue of trees, which terminates a course of two miles, at a temple of GANESA, surnamed CHINTAMUN. It is visited by numerous processions at certain stated periods.

THE south wall of the town is washed by the *Sipparah*, which makes a sudden turning at this place. This extremity of the city, called *Jeysingpoorah*, contains an observatory, built by the Rajah JEYSING of *Ambheer*, since named from him *Jeynagur*. He built observatories at five principal cities, viz. *Dehly*, *Matra*, *Jeynagur*, *Benares*, and *Oujein*, as he informs us in the preface to the astronomical tables, published by him,

him, which, in compliment to the reigning Emperor, he entitled *Zeej Mahommedſhahy*.

TURNING to the eaſt, we are preſented with a different proſpect. As far as the eye can reach is a level plain, which is only interrupted by a conical hillock at the diſtance of three miles, beyond which is an extenſive lake, that lies cloſe on the left of the road that leads to *Bopâul*. On the right of the road at the ſame place, is a *Rumnah* belonging to SINDIAH, well ſtocked with deer.

THE Rajah JEYSING held the city and territory of *Oujein* of the Emperor, in quality of Soubahdar; but it ſoon after fell into the hands of the *Mahrattas*, and has belonged to SINDIAH's family for two generations. The diſtrict immediately dependent on the city, yields a revenue of five lacs per annum, and comprehends 175 villages. The ancient landholders, who were deprived of their poſſeſſions by the *Mahrattas*, ſtill retain ſome forts, diſperſed over the province; and partly by treaty with the conquerors, partly by force, receive a proportion of the rents from the adjacent villages. One of theſe people, who are called *Graſſiah*, is HURRY SING, a *Rajpoot*: he poſſeſſes the mud fort of *Dootétia* about ten miles from *Oujein*. He commands a body of two hundred *Graſſiahs*; and a neighbouring village, *K helana*, the rent of which is 2000 rupees a year, pays him 150, or 7½ per cent. on the revenue. But theſe free-booters, not contented with the regular contribution, exerciſe the moſt lawleſs rapine, ſo that travelling is unſafe; and they watch the occaſion which any caſual confuſion or diſtreſs of the government, or the withdrawing of troops for foreign ſervice, occaſionally affords them, to extend their ravages to the gates of the city, or even within the walls.

THE officers of government are almoſt the only *Mahratta* inhabitants of *Oujein*. The bulk of the people,

people, both *Hindus* and *Muſulmans*, ſpeak a dialect very little different from that of *Agra* and *Dehly*. The *Muſulmans* form a very conſiderable portion of the inhabitants, and of their number a great part is compoſed of particular claſs, here known by the name of *Bohrah*. They diſtinguiſh their own ſect by the title of *Iſmaeeliah*, deriving their origin from one of the followers of the prophet, named ISMAEEL, who flouriſhed in the age immediately ſucceeding that of MAHOMMED. This ſingular claſs of people forms a very large ſociety, ſpread over all the countries of the *Decan*, particularly the large towns. *Surat* contains [illegible]00 families, and the number in *Oujein* amounts to 1500. But the head-quarters of the tribe is at *Burhánpoor*, where their *moullah* or high-prieſt reſides. The ſociety carries on a very extenſive and multifarious commerce, in all thoſe countries over which its members are diſperſed, and a certain proportion of all their gains is appropriated to the maintenance of the *moullah*, whoſe revenue is conſequently ample. He is paramount in all eccleſiaſtical matters, and holds the keys of paradiſe; it being an eſtabliſhed article of faith that no man can enter the regions of bliſs without a paſſport from the high prieſt, who receives a handſome gratuity for every one he ſigns. But he alſo exerciſes a temporal juriſdiction over his tribe, wherever diſperſed, and this authority is admitted by the various governments under whoſe dominion they reſide, as an encouragement to theſe people who form the moſt induſtrious and uſeful claſs of the inhabitants. A younger brother of the moullah reſides at *Oujein*, and with that ſame title exerciſes over the *Bohrahs* reſident there the authority, ſpiritual and temporal, annexed to the office. Five mohillahs of the city are inhabited by them, and ſubject to his juriſdiction.

ON our arrival at *Oujein*, we had plenty of excellent grapes from *Burhánpoor*. By the time this ſupply was exhauſted, the grapes produced at *Oujein* came into

ſeaſon.

ſeaſon. Theſe are inferior in ſize and flavour to the former; but a ſingularity in this climate is that the vine produces a ſecond crop in the rainy ſeaſon. This however is acidulous, and much inferior to the firſt. The other fruits are the mango, guava, plantain, melon, and water melon, two ſpecies of *Annona, ſquamoſa,* and *reticulata (Sherecfah* and *Atah),* ſeveral varieties of the orange and lime trees; the *Falſah (Grewia aſiatica)* from which the natives make a moſt refreſhing, ſlightly acidulous ſherbet; and as a rarity in a few gardens, the *Carica Papaya.*

THE ſoil in the vicinity of *Oujein,* and indeed over the greateſt part of the province of *Malava,* is a black vegetable mould; which, in the rainy ſeaſon, becomes ſo ſoft, that travelling is hardly practicable; on drying, it cracks in all directions, and the fiſſures are ſo wide and deep in many parts, by the road ſide, that it is dangerous for a traveller to go off the beaten track, as a horſe getting his foot into one of theſe fiſſures, endangers his own limbs and the life of his rider. The quantity of rain that falls in ordinary ſeaſons is ſo conſiderable, and the ground ſo retentive of moiſture, that wells are hardly uſed for watering the fields. Thus a great part of the labour, incident to cultivation in *Hinduſtan,* is ſaved. But this very circumſtance makes the ſuffering more ſevere, upon a failure of the periodical rains; for the huſbandman, accuſtomed to depend on the ſpontaneous bounty of heaven, and unprovided with wells in his fields, is with difficulty brought to undertake the unuſual labour of watering, eſpecially as it muſt be preceded by that of digging the ſource.

THR harveſt, as in *Hinduſtan,* is divided into two periods, the *Khereef* and *Rubbee*; the former being cut in *September* and *October,* and the latter in *March* and *April.* The kinds of grain cultivated here, taken in the order of their ripening, are as follow:

KHEREEF.

KHEREEF.

1. *Mukka*, in *Hinduſtan Bhoottah*; *Zea Mays*. It was in flower the 20th of *July*, and is gathered in *Auguſt* or *September*.

2. *Congnee Panicum Italicum* was in flower *July* 28th.

3. *Oord* or *Maſh*; *Phaſeolus Max*; flowers in *July* and *Auguſt*, ripe about the end of *September*.

4. *Moong Phullee*, *Arachis Hypogaea*; (ground-nut, or pig-nut of the *Weſt Indies*) was in flower in *September*.

5. *Mand* or *Mal*, *Cynoſurus Coracanus*, LIN. *Eleuſine Coracana Gærtner*: in *Hinduſtan* the name is *Murhua*, in the *Carnatic Natcheny*, and in *Myſore Râgy*.

6. * *Bájera*, is a ſmall round grain, eſteemed very nutritious, but heating, and ſomewhat hard of digeſtion. Being very cheap, it is principally uſed by the poorer claſs of inhabitants, and by the *Mahrattas*, who make of it flat cakes, of which a horſeman can carry under his ſaddle a ſufficient proviſion for many days. It was in flower the 13th *September*, and is reaped in *October*.

7. *Jooar*. *Holcus Sorghum*, LIN.
Andropogon Sorghum, ROXB.

The culm is very ſtrong, and grows to the height of ſeven or eight feet. The ſpike egg-ſhaped, nodding

* The *Holcus Spicatus* of LINNÆUS. A deſcription and figure of it are given in the 1ſt volume of the tranſactions of the PADOUA (p. 124.) by Sign. P. ARDUIN. He obtained the ſeeds from *Tunis*, where it is called *Drob*. The internal ſtructure of the fructification, and the form of the ſpike, agree ſo well with the *Bajerá*, that I have no heſitation in referring them to the ſame ſpecies. But the ſpecimen repreſented by Sign. ARDUIN is much more ramified, with the culm and principal ſpike larger, than I have ever ſeen. This is probably a variety, produced by diverſity of ſoil and cultivation.

or

or hanging (ſometimes erect), ſix or ſeven inches in length, and about nine in circumference. Its times of flowering and reaping are the ſame with the laſt.

THE *Holcus cernuus*, which is the third ſpecies deſcribed by Sign. ARDUIN *(Sagg. di Padou:)* does not appear to differ from this, except as a variety: the erect or recurved poſition of the panicle, depending on its ſize and weight, compared with the ſtrength of the ſtalk.

BUT it is ſubject to another variety, ſtill more remarkable. The hermaphrodite calyx is ſometimes biflorous, and ripens two ſeeds; ſometimes uniflorous, producing only one. I have found, mixed in the ſame field, plants with erect, lax panicles, and others more compact and nodding. The former had, moſt frequently, one-flowered calyces, and the latter two-flowered. But, in ſome inſtances, the one-flowered and two-flowered were found on the ſame head, and even in the ſame branch of the panicle. The ſeeds in the firſt caſe are round, in the ſecond hemiſpherical, one ſide of each being flattened by their mutual contact.

To aſcertain the matter more accurately, I ſent ſeeds of both kinds to Doctor ROXBURGH, who ſowed them in the botanical garden, at a diſtance from one another. The plants came up with one and two-flowered calyces indiſcriminately, and flowers of both kinds were even mixed in the ſame panicle.

8. *Moong*; *Phaſeolus Mungo*. The ſpecific difference between this and the *Oord (P. Max)* is very difficult to eſtabliſh, yet its conſtancy forbids us to conſider them as mere varieties.

1. The ſtalks of the *Oord* are hiſpid in a leſſer degree than thoſe of the *Moong*.

2. The

2. The ſtipules of the former are more acute than thoſe of the latter.
3. The leaves are rather more acute.
4. The legumes ſhorter.
5. The ſeeds of the *Oord* larger, more compreſſed and black; thoſe of the *Moong* ſmaller, rounder and green.

This was ripe about the end of *October*, being about a month later than the *Oord*.

9. *Birtee*; a ſpecies of *Panicum*, uſed in food, was in ſeed *October* the 6th.

RUBBEE.

1. Wheat; *Triticum*.
The ſpecies cultivated here has the following marks; Calyces four-flowered, ventricoſe, ſmooth, imbricated; the two outward florets with long beards, the third with hardly any; the fourth and innermoſt, neuter. From this character I am doubtful whether it ſhould be referred to the ſpecies *æſtivum* or *ſpelta*, or whether it may not be a new ſpecies. It was in the ear at *Oujein*, the 30th of *January*, and on the 19th of *March*, at the diſtance of ſix days journey, we found it ripe.

2. *Channah*, *Cicer arietinum*.

3. *Maſoor* a ſmall legume, which I have not ſufficiently examined. (*Ervum Lens ?*)

4. *Toor* or *Arher*; *Cytiſus Cajan*.

It is ſown ſoon after the ſetting in of the rains, the ſeed being mixed with thoſe of *Jooar*, *Bajera*, and other grain of the *Khereef*. When they are removed, the *Cytiſus* remains, and its harveſt is about the ſame time with the wheat.

5. PEASE;

5. PEASE; here called *Buttlee*: ripe in the cold ſeaſon.

RICE is cultivated only on a few detached ſpots, which lie conveniently for water, but the quantity is ſo ſmall that it can hardly be reckoned among the crops. In a liſt I received of the cultivated grains, I find the name of *Cablee Channah*, but not having ſeen it, can give no account of it.

BARLEY is not cultivated; the ſoil is unfavourable to this grain, and beſides, the farmers ſay, it would require artificial watering.

THE principal articles of export trade are cotton, which is ſent in large quantities to *Guzerat*; courſe ſtained and printed cloaths; *Aal*, or the root of the *Morinda Citrifolia*, and opium. As the manner of preparing this drug differs, in ſome reſpects, from that which is practiſed in other parts of *India*, I ſhall give an account of it, which I received from ſome experienced cultivators The poppy is ſown in *December*. The ground is well manured with cow-dung and aſhes. It is ploughed ſeven times, then divided into little ſquares, of two or two and a half cubits. In theſe the ſeeds are ſown, in the proportion of one ſeer and a half, or two ſeers*, to a begah†. After eight or nine days, the ground is watered; that is, it is compleatly overflowed to the depth of a few fingers' breadth, and this operation is repeated, at the diſtance of ten or twelve days, for ſeven times. After each time of watering, when the ground is a little dried, but ſtill ſoft, it is ſtirred, with an iron inſtrument, ſo as to looſen it effectually, and the weeds are carefully removed. Alſo, if the plants come up very cloſe, they are thinned, ſo that the remainder may be at the diſtance of four or five fingers' breadth from one another. The plants thus pulled out, when very young, are uſed as a pot-herb; but

* The ſeer is eighty rupees weight. † One hundred cubits ſquare.

when grown a little larger, as a foot and a half in height, are unfit for this uſe, from their intoxicating quality.

The poppy flowers in *February*, and the opium is extracted in *March* or *April*; ſooner or later, according to the time of ſowing. The white kind yields a larger quantity of opium than the red; the quality is the ſame from both. When the flowers are fallen off, and the capſules aſſume a whitiſh colour, it is the time to wound them. This is done, by drawing an inſtrument with three teeth, at the diſtance of about half a line from one another, along from top to bottom of the capſule, ſo as to penetrate the ſkin. Theſe wounds are made in the afternoon and evening, and the opium gathered the next morning. They begin at day break, and continue till one *p,har* of the day is paſſed. The wounds on each capſule are repeated for three ſucceſſive days; the whole capſules in a field are wounded, and the opium gathered, in fifteen days. In a plentiful ſeaſon and good ground, they obtain from ſix to nine ſeer of opium from a begah of ground: a ſmall crop is from two to four ſeers.

In this diſtrict, all the opium, even at the time of gathering, is mixed with oil; and this they do not conſider as a fraudulent adulteration. The practice is avowed, and the reaſon aſſigned is to prevent the drug from drying. The people employed in gathering it have each a ſmall veſſel containing a little oil of ſeſamum, or of linſeed. The opium which has flowed from the wounded capſules is ſcraped off with a little iron inſtrument, previouſly dipped in oil. A little oil is taken in the palm of the hand, and the opium gathered with the iron inſtrunent is wiped in the hand, and kneaded with the oil; when a ſufficient quantity is collected in the hand, it is thrown into the veſſel with oil. The whole quantity gathered is, when brought home, kneaded into a maſs, and thrown into a veſſel with more oil, in which the whole crop of the ſeaſon

ſeaſon is collected. Thus, it is evident, that the proportion of oil in any given quantity of opium, is not determined with much accuracy; but they compute that the oil amounts to half the quantity of the pure drug, or one-third of the mixed maſs.

The adulterations practiſed ſecretly, and conſidered as fraudulent, are mixing the powder of the dried leaves of the poppy; and ſometimes even aſhes.

When cheap, it ſells for fifteen rupees; and when dear, or of a ſuperiour quality, for twenty-five or thirty rupees per *d'hiree*, a weight of $5\frac{1}{4}$ ſeers, each ſeer being the weight of eighty rupees.

It is exported to *Guzeret*, *Marwar*, &c. The merchants from different parts of the country, advance money to the cultivator, while the crop is on the ground: when the drug is ready, they receive it, and ſettle the price acording to the quality and the ſeaſon. The plant is ſown repeatedly on the ſame ground without limitation, as they find it does not exhauſt the ſoil.

The mixture of oil renders this opium of a very inferiour quality to that of the eaſtern provinces, and particularly renders it unfiit for making a tranſparent tincture.

Fine white cloths are imported from *Chanderi* and *Sehor*, and from *Burhánpoor* they receive turbans, and *ſaries*, and other ſtained goods. From *Suràt*, are imported various kinds of *Europe* and *China* goods, many of which we purchaſe here at a cheaper rate than we could in the *Engliſh* Settlements. Alſo pearls, which are partly conſumed here, and partly exported with advantage to *Hinduſtan*. *Aſa-fœtida*, which is produced in *Sind*, and the provinces beyond it, comes here

 through

through *Marwar*, and is exported to the eaſtward to *Mirzapoor*, &c. On the other hand, diamonds from *Bundelcund*, go by this place to *Surat*.

But the carrying trade between the provinces to the weſt and the eaſtward is carried on to a much greater extent, and to more advantage at *Indoor* than here; becauſe the duties there are lower. At that place only four or five annas are exacted on a bullock load, which may be worth three or four hundred rupees; whereas at *Oujein*, they amount to ten per cent. on the value of the goods, exported or imported; ſo that on ſuch articles as only paſs through the place, the duties conſume twenty per cent of the profit. The reaſon is obvious. *Indoor* had the good fortune to be under the prudent and peaceable adminiſtration of Aheliah Bai, a princeſs, who, free from ambitious views, had only the internal proſperity of her country, and the happineſs of its inhabitants, at heart; whereas Sindiah, led away by the dazzling proſpect of extending his conqueſts and acquiring great political influence, maintained expenſive armaments, exhauſted his treaſury, and was forced to abandon his ſubjects to the rapacity of thoſe who ſupplied the means of carrying his ſchemes into execution.

We remained at *Oujein* from the middle of *April* to the middle of *March*, and ſo had an opportunity of obſerving nearly the whole viciſſitude of ſeaſons. In the month of *April* and *May*, the winds in the day time were ſtrong and hot, the thermometer expoſed to to them being from 93 to 109, at four in the afternoon. Theſe winds, with little deviation, came from the weſtward. The heat at nine in the evening varied from 80 to 90. But the mornings, during all this time were temperate, in only one inſtance riſing ſo high as 81, and ſometimes being as low as 69. From the 18th to the 25 of *May*, we had frequent ſqualls from N W and W N W; once from N E, attended with thunder, lightning,

ning, and rain. The quantity that fell during theſe eight days, amounted to about ten inches. This weather, the inhabitants informed us, was unuſual at that ſeaſon. It produced a temporary coolneſs; but the ſky having cleared up before the end of the month, the air returned to its former temperature, or rather exceeded it, for the morning heat now ſometimes mounted as high as 85.

On the 11th of *June* the rains ſet in, and the quantity that fell during the ſeaſon was as follows:

May, as above, about	10 inches	5 days.
June, - -	3,521	9
July, - -	12,071	22
Auguſt, - -	21,088	22
September, - -	5,651	9
	52,331	67

The rain terminated on the 14th of *September*. From the middle of *June* to the middle of *July*, the afternoon heat varied from 107 to 86, gradually diminiſhing as the ſeaſon advanced, and ſometimes from the continuance of the rain was as low as 80. The morning was more uniform, its extremes lying between 87 and 77. The evening, between 90 and 75. The weather, during this period, was conſtantly cloudy, ſometimes hazy. The wind uniformly from the weſtward, varying from N W to S W.

From the end of this period, to the termination of the rains, the afternoon heat was from 89 to 74. The limit between the two periods was ſtrongly marked, *July* the 15th, at P. M. being 91; 16th, at the ſame hour, 78. The morning, from 80 to 72. During this period, the clouds were ſo heavy and ſo uniformly ſpread over the whole face of the heavens, that the ſun

could ſeldom dart a ray through the gloom. The rain was frequent and long continued, but ſeldom heavy. The only inſtance in which the rain of one day amounted to ſo much as three inches, was in the ſpace between the 15th of *Auguſt*, at 7 P. M. and the 16th, at 9½. The rain, during this period, of 26½ hours, was inceſſant, and the quantity amounted to 10,128 inches. It then abated, but did not entirely ceaſe till the 17th, at 4½ P. M. The quantity in that interval was 0,629. This it was which cauſed the inundation formerly mentioned. The waters continued to riſe till the 16th at midnight, and then gradually ſubſided; but it was ſeveral days before the river was fordable by men or horſes.

The winds, during this period, were moſt frequently weſt, ſometimes N W or S W, twice S S W, four times ſouth, and thrice eaſterly, commonly light breezes.

After the rains were over, and the ſky cleared up the mid-day and afternoon heat encreaſed. By the 23d of *September*, it was 92; *October* 1ſt, 101, and till the middle of *November*, was ſeldom under 90. The morning heat during that period gradually decreaſed from 73 to 46. The evening from 79 to 57. The dew towards the end of this period was very heavy.

The winds for the firſt two days continued at weſt; afterwards calm and light airs at N E to the end of *September*. To the middle of *October*, thoſe of the N W quarter prevailed, of moderate force, but with frequent calms. To the end of the month the N E prevailed, and the mornings were hazy. In *November*, till the 6th, the weſterly was the reigning wind, after which, to the 15th, the N E recovered its prevalence: the weather was leſs hazy than towards the end of the preceding month. On the other hand, during *October*,

2 there

there was not a cloudy day. To the 8th of *November* they were frequent; and on the 4th, a little rain fell; after that to the 15th the ſky was clear, and the only two hazy mornings were in this period.

At this time (15th *November*) I was ſeized with a fever, which interrupted the meteorological obſervations till the 1ſt of *February*. All that I know of the weather during that interval is, that about the middle of *December* we had it ſtormy, with thunder and a pretty heavy fall of rain.

From the 1ſt of *February* to the 14th of *March*, when we left *Oujein*, the afternoon heat varied between the extremes of ſeventy-three to 103. The firſt, on *Feb.* 9th, with wind at NNW: the ſecond, *March* 12th, wind weſt: ſky at both times clear. Morning heat from forty-ſix to ſixty-ſeven, evening from fifty-five to ſeventy-ſix.

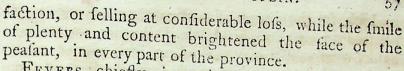
The weſterly were the prevailing winds during this period, varying between NNW and SSW. In *February*, the eaſterly wind was obſerved twice in the morning, four times at mid-day, and twice in the evening. It did not occur once during our ſtay in *March*. The ſky was clear, excepting the 4th of *February*, which was cloudy with a ſhower of ſmall rain.

The foregoing abſtract gives a pretty diſtinct idea of the weather we met with during our reſidence at this place; but we cannot from thence form an eſtimate of the climate. The quantity of rain, in particular, was allowed by the oldeſt inhabitants to be greater than they ever remembered to have ſeen. The country had ſuffered three years of drought, previous to our arrival, in conſequence of which wheat-flour ſold at ten ſeers for a rupee. The coarſer grains were proportionably dear, which placed the means of ſubſiſtence ſo far beyond the reach of the poorer inhabi-

tants, that hundreds were reduced to the humiliating neceſſity of ſelling their children, to procure a ſcanty meal for themſelves. But the deficiency of rain, though ſeverely felt, was not the only cauſe of all this diſtreſs. The ſcarcity was artificially increaſed, by the rapacity of CABLEE MULL, the perſon entruſted by SINDIAH with collecting the revenues of the diſtrict. His wealth and influence enabled him to hoard up large magazines of grain, and thereby keep the price far beyond its natural ſtandard. And when SUDASHEU NAICK, an eminent banker, whoſe diſintereſted benevolence deſerves to be recorded by a much more eloquent pen, attempted to throw open his own ſtores, and ſell the grain at a moderate price, no means of obſtruction and intimidation, that the union of artifice with power could afford, were left unemployed, to make him deſiſt from his purpoſe; ſo that he was obliged to confine the exertions of his humanity to feeding the poor at his own houſe; and in this manner thouſands owed the preſervation of their lives to his bounty.

THE patient forbearance of the *Hindu*, under this dreadful calamity, has been noticed by ſeveral writers. In this inſtance, the indignation of the inhabitants at the unfeeling avarice of their rulers, could not be concealed. But, inſtead of breaking open their granaries, demoliſhing their houſes, mal-treating their perſons, or contumeliouſly burning them in effigy, the uſual proceedings of an enraged *European* mob, they contented themſelves with making a repreſentation of funeral rites, and proclaiming that the *Hákem* was dead, and SUDASHEU NAICK appointed to fill his place.

THE abundant rain which fell this ſeaſon triumphed over all oppoſition. Before we marched, wheaten flour had fallen to twenty ſeers per rupee. The greedy monopoliſts ſaw thoſe hoards which the anguiſh of the famiſhed poor could not unlock, conſigned to putrefaction,

faction, or ſelling at conſiderable loſs, while the ſmile of plenty and content brightened the face of the peaſant, in every part of the province.

FEVERS, chiefly intermittent, prevailed very generally, towards the end of the rains, and encreaſed in frequency till the middle of *November*. A variety of cauſes contributed to their production. The debility, induced by deficient nouriſhment, prediſpoſed the bodies of the poorer claſs to be acted on by every exciting cauſe. The unuſual quantity of rain, and very moiſt ſtate of the atmoſphere, contributed to encreaſe the univerſal relaxation; the water, collected in ſtanding pools, ſome of which of great extent, were cloſe to the city wall, in drying up, left a putrid fomes; and, laſtly, the great afternoon-heat in *October* and *November*, followed by the cold and damp of the evening, gave irreſiſtible activity to the preceding cauſes, in conſtitutions which had hitherto reſiſted their influence. This it was which occaſioned the univerſal prevalence of the diſeaſe among our ſepoys and ſervants, after the 1ſt of *October*, when we left our habitations in town, and went into tents. Before the rains, we had encamped in a grove adjoining to the garden of RANA KHAN; but when we marched out, this ground was covered with a crop of corn not yet ripe; and beſides, it was low, and having been overflowed to a conſiderable depth, in the inundation, threatened to be miſchievous by its dampneſs. The place we fixed on for an encampment, was near half a mile farther to the W N W. It was an elevated ſpot, to which the inundation had not reached, covered on the S W, by the ſmall grove of SHAH DA'WUL, but perfectly open on every other ſide. The neareſt part of the hilly ridge was at the diſtance of 2½ miles, the extremities of the ridge lying from N 10 W to S 60 W, or comprehending 110 degrees of the horizon. To the ſouth and ſouth-eaſt, the *Jeerah* nullah was within a furlong and a half of our tents. As it had ſwelled to a conſiderable height during the rains, and was now gradually drying up, it was natural

to look for the ſource of miaſma in putrefying vegetable matter left on its banks. But its bottom and banks were a ſtiff clay, affording little matter of this kind; and the prevailing winds from the beginning of *October* to the middle of *November*, were the N W, W N W, and N E, none of which could convey exhalations from the nullah. Therefore we are obliged to look for ſome other cauſe of the prevailing epidemic, and one amply ſufficient, I apprehend, will be found in the want of cover, to protect the men againſt the ſcorching heat of the day, and the chilly damps of night. They themſelves at length became ſenſible of the unhealthineſs of the ſpot, although they entertained ſuperſtitious notions of its cauſe, aſcribing it to the indignant manes of thoſe who were ſlaughtered in the battle formerly deſcribed. At their requeſt, ſome time in *December*, the camp was removed into the grove near RANA KHAN's garden, from which the crop had, by this time, been carried off. I was then incapable of obſerving the effects of this change, but have been informed that the diſeaſe rapidly declined and ſoon diſappeared. This fact pleads ſtrongly in favour of an opinion advanced by* Dr. JACKSON, that clear elevated ſituations, notwithſtanding the free circulation of air, are, from unavoidable expoſure to the morbid cauſes above enumerated, leſs favourable to health than has been ſuppoſed; and that "inſtead of danger, there is ſaftey, in the ſhelter of wood." The queſtion is of the higheſt importance, the Doctor ſupports his argument with ability, and the whole paſſage deſerves the moſt ſerious conſideration of thoſe who are entruſted with the choice of ground for the encampment of troops.

THE only complaint which I obſerved to be endemial, was the *Dracunculus* or *Guinea* worm, the hiſtory of which is too well known to require any

* Treatiſe on the Fevers of *Jamaica*, Chap. IV. p. 83—88.

deſcription

description in this place*. It is called by the *Spaniards*, *Cullebrilla* or little serpent, and seems to be the same that is described by M. DE LA CONDAMINE, and known to the *French* at *Cayenne* by the name of *Vermacaque*. The only difference between the descriptions of the insect in these dierffent countries, is in their length; those of *Cayenne*, being only said to be *several inches*; whereas those of *Africa* and the *East Indies* are known to amount to *some ells*. And this diversity in the description by different authors, is probably rather owing to the accidental circumstance of the specimens that fell under the observation of each, than to any real variety, or specific difference, between the animals of the two continents. The name by which they are known at *Oujein*, and I believe, in other parts of *Hindustan* is *Neruah*.

THE cause of their production is still involved in obscurity. I have have met with three hypotheses to account for it. 1st, That it is caused by the malignity of the humours deposited and fixed in some part of the cellular texture. This I was surprized to see assigned as the most probable, by the authors of the *French Encyclopedia*; after the doctrine of equivocal generation had been so compleatly refuted, and universally abandoned. 2dly, In Dr. REES's edition of CHAMBERS's Dictionary, I find it ascribed to the *drinking* of stagnant and corrupt water, in which it is probable the ova of these animals lie. 3dly, It has been alledged that certain insects, which inhabit the air, or the water, in those coun-

* *Filaria medinensis* LIN. S. N. cur GMELIN.
Gordius medinensis Syst. Nat. ed. xii.
Vena medinensis WELSCH. SLOAN.
Dracunculas persarum KŒMPFER.

The last author gives a very interesting history and description of the animal, which he says he was twice able to extract at one operation, entire and alive. Thrown into warm water it became flaccid and motionless: being taken out, it was more rigid and moved obscurely: but when immersed in cold water, it bent and moved itself violently, and as if impatient of the cold liquid, frequently raised its head above the surface. Amœn. exot. p. 524 et seq.

tries,

tries, pierce the ſkin, and depoſit thier ova, which produce the worms in queſtion.

Without pretending to decide between the two ſuppoſitions; or adverting to the difficulty of conceiving how the ova could preſerve their viviſying principle, through the proceſſes of digeſtion, chilifaction, and circulation, till they are finally depoſited, by the capillary arteries, in the cellular texture; the obſervation that theſe inſects are only found in the extremities, and moſt frequently in the lower, which are moſt expoſed to immerſion in ſtagnant water, pleads ſtrongly in favour of the third hypotheſis. The following fact renders it probable, that the generation and the growth of the worm, after the ova have been depoſited, is very ſlow. Although the complaint was very frequent among the inhabitants of *Oujein*, our people remained exempt from it, during our reſidence there, for eleven months; but in the month of *Auguſt* following (five months after we left the place) the diſeaſe broke out in many. In all the caſes which fell under my obſervation, the worm was lodged in the lower extremity, excepting one inſtance. This patient, who was a bhiſhtee, or water-man, had the complaint break out in his arm. The nature of his profeſſion expoſed his arms, more than thoſe of other people, to the attacks of the parent inſect: ſuppoſing her to reſide in the water.*

* Dr. Chisholm aſcribes the diſeaſe, which is very prevalent among the negroes in *Grenada*, to their drinking the water of certain wells, in which the naked eye diſtinguiſhes innunerable animalcules. On one eſtate, where no other water can be had, they are attacked regularly every year, about the month of *November*; in the month of *January*, the diſeaſe ſpreads through the greateſt part of the gang; and in the month of *March*, it entirely diſappears, till the following *November*. On other eſtates, the diſeaſe was equally frequent, till the obnoxious wells were filled up, ciſterns built, or were dug in places not ſubject to the influence of the ebb and flow, of the tide; at the return of the uſual period of the appearance of the *Guinea* worm, nothing of the kind happened. This is a ſtrong proof that the inſect which produces the worm reſides in the water, but it is equally reconciliable to the ſuppoſition that the ova are depoſited under the ſkin, when any part of the external ſurface is immerged in the water, as that of their propagating after being ſwallowed with the drink. As we know that moſt inſects

have

The method of extraction, practised by the natives at *Oujein* differs in nothing from that described by authors; except that in the opperation of gently pulling, and rolling it on a pin, when they feel a resistance, they have recourse to friction, and compressing the part in various directions. This is not confined to the tumour, but extended over the limb to some distance. It is said to loosen the worm from its adhesions to the subcutaneous parts, and thus facilitate its extraction, and thus facilitate its extraction. In the *American* process, the rubbing of the wound with a little oil, is taken notice of, but that seems to be adopted with a different view. The accident of breaking the worm, was in some instances followed, by violent inflammation and tedious suppurations, breaking out successively in different parts of the limb; but I did not hear of any instance of mortification from this cause.

March 1793.—The resident having received instructions to return to *Hindustan*, on the 14th of *March* 1793, proceeded to *Gutteah*, a village under the management of Appah Khandey Raw. It lies from our camp at *Oujein* N 27 E, 14,79 miles. The road was in general good, over an open well-cultivated country. Only, in crossing three ridges of rising ground, the number of stones gave some impediment; and we forded three nullahs, the banks of which being steep, rendered the passage of carriages difficult.

March 15.—Marched N 15½ E, 16,5 miles, to *Tenauriah*, a village possessed by a *Grassiah* zemindar, who holds of Sindiah, and pays between three and and four thousand rupees annually.

have certain stated seasons for procreation, we can easily account for the periodical recurrence of the disease; but I could not learn at *Oujein* that it observes any such regular alternation in that climate. Dr. C. observes, that the worm in *Grenada* is not confined to the extremities.

Chisholm on the malignant pestilential fever, p. 34.

March

March 16.—MARCHED N 12 E, 10,53 miles to *Ager*, a large town, with a ſtone fort, belonging to RUNG ROW POWA'R. To the ſouth-weſt of the town is a fine lake. The road in general good, ſoil reddiſh or iron coloured.

March 17.—MARCHED N 12¾ E, 16,59 miles, to *Soofneer*, a pretty large town, belonging to SINDIAH, and under the management of APPAH K,HANDEY RAW, whoſe aumil reſides here. The road lies acroſs ſeveral low ridges of hills, and is in general full of little ſtones. The ſoil of a ruſty iron colour, very little cultivation.

March 18.—MARCHED N 17½ W, 14,5 miles, to *Paráwa*, a town belonging to TUCKOJEE HOLCAR, whoſe aumil reſides here. Road good. Soil black and ſpongy, like the moſt of *Malava*, but little cultivated. The diſtrict dependent on this town yields one lack of rupees annually.

March 19.—MARCHED N 20½ W, 15,91 miles to *Soonél*. The road and ſoil, on this day's march, much the ſame as yeſterday. A good deal of *Jooár* ſtubble by the road ſide, and ſome wheat, now ripe.

Soonél is a town of conſiderable extent, of a ſquare form, and encloſed with a ſtone wall. Two broad ſtreets croſs one another, at right angles, in the middle of the town, which is the *Chowk*. There are thirty-two villages in this pergunnah, which is held as a jageer by K,HANDEY RAW POWAR, the elder brother of RUNG RAW APPAH.

March 21.—MARCHED N 4½ E, 16, 05 miles to *Julmee*. Road in general good. Paſſed the *How* river, and two nullahs. The ford of the firſt, being very ſtony, is difficult. Soil black. Much cultivation of wheat and poppy. *Julmee* is a pretty large village, which was aſſigned by the PESHWA, as a jageer, to NAROOJEE-

NAROJEE-GONEISH, formerly dewan to the foubahdar HOLCAR. Since the death of NAROOJEE it has been held by HOLCAR himfelf. Several villages, between *Soonel* and this place, belong to the rajah of *Kotah.*

March 22.—MARCHED N 5½ W, 15,56 miles, to *Muckundra.* Road in general good; only, near the villages of *Afcali* and *Telakhairee*, it lies over a ftratum of flate, which is very flippery. A good deal of poppy is cultivated near thofe villages. A begah, they fay, yields about five feers of opium. *Muckundra* is a fmall village, fituated in a valley, nearly circular, about three quarters of a mile in diameter, furrounded by very fteep hills, and only acceffible by an opening to the fouth, and another to the north; each of which is defended by a ftone wall and a gate. At thefe gates are pofted chokeydars, belonging to the rajah of *Kotah.* This is the only pafs, within many miles, through a ridge of moutains, which extends to the eaft and weft, dividing the province of *Málava* from the diftrict called *Haroutee*, or country of the tribe *Hára.* The water here is got from a large *bowley*, or well faced with ftone. It is faid, by the natives, to be of a hurtful quality; and that fuch as drink it for the firft time are liable to fevers. *Chundkhairee*, where at this feafon of the year is a large market for horfes and other cattle, is diftant from this place feven cofs to the eaftward.

March 23.—MARCHED N 36½ W, 17 miles, to *Puchpahár.* The pafs through the hills was narrow and ftony; the road afterwards good. Near *Puchpahár* paffed over a bed of *Schiftus*, in ftrata inclined to the horizon. The country rather thinly cultivated; a good deal of grafs by the road fide.

March 24.—MARCHED N 18¼ W, 8,64 miles, to *Anandpoor*, a fmall village, near which is a large tank, with a ftone wall, and buildings on the bank of

of it. Road good, through a jungle of plaſs* and other ſhrubs. Soil of a reddiſh colour: little cultivation. Cloſe to *Anandpoor*, the road runs over a ſtratum of *Schiſtus*.

March 25.—MARCHED N 8½ E, 5,17 miles, and encamped in a tope, among gardens, near the city of *Kotah*. Road in general good; in ſome parts a ſtratum of *Schiſtus*. This city is of conſiderable extent, of an irregular oblong form, encloſed with a ſtone wall and round baſtions. It contains many good ſtone houſes, beſides ſeveral handſome public edifices. The palace of the rajah is an elegant ſtructure. The ſtreets are paved with ſtone. It has, on the weſt, the river *Chumbul*, and on the north-eaſt, a lake, ſmooth and clear as cryſtal, which, on two ſides is banked with ſtone, and has, in the middle, a building, called *Jug-mundul*, which is conſecrated to religious purpoſes. Near the north-eaſt angle of the city, and only ſeparated from the lake by the breadth of the road, is the *Chetree* or mauſoleum of one of the Rajahs. It is a handſome building; the area on which it ſtands is excavated, ſo as to be ſeveral feet lower than the level of the country; and paved with ſtone. In front of the building are placed ſeveral ſtatues of horſes and elephants hewn out of ſtone.

To the ſouth of the city, about three furlongs beyond the wall, is a place, conſecrated to the celebration of RAM's victory at *Lanka*, on the *Duſſerah*, or 10th of *Koonar Sukul pucſh*. There is a ſquare terrace of earth, raiſed about two feet above the ground, and at a little diſtance to the ſouth, an earthen wall, with a few round baſtions. Behind this, in a recumbent poſture, is an enormous ſtatue of earth, which repreſents the dæmon RAWOON. On the day above named, all the principal people aſſemble at this terrace, on which ſome guns are drawn up. Their fire is directed againſt the earthen wall, and continues

* *Butea Frondoſa*. ROXB. *Ind.* Pl. Vol. I, No. 21.

till

till that is breached, and the image of RAWOON defaced or demoliſhed.

THE revenue of *Kotah* is thirty lacks of rupees; out of which is paid, though not regularly, a tribute of two lacks yearly to SINDIAH, and as much to HOLCAR. The preſent Rajah is named UMMEID SING. His uncle, who was his immediate predeceſſor, was aſſaſſinated about twenty or twenty-five years before, by his Dewan ZALIM SING, a *Rajpoot* of the tribe *Jhála*. He ſeized, and ſtill retains the adminiſtration; having left nothing but the name and pomp of Rajah, to the preſent incumbent. The Rajah's family is of the tribe *Hára*.

WE halted here two days, which were employed in receiving and paying viſits; and on the 28th marched N 21½ E, 6,29 miles, to *Gowmuch*. The road good, but the bed of the *Chumbul*, which we forded at *Gowmuch*, was ſtoney, uneven and ſlippery. This is a ſmall village, dependent on *Patan*, from which it is diſtant one coſs. *Patan* contains ſome conſiderable buildings, erected by the Rajahs of *Boondee*, viz. a palace, and a temple dedicated to VEESHNOO. It is the head of a pergunnah, containing forty-two villages, and belongs half to SINDIAH and half to HOLCAR.

March 29.—MARCHED N 43 W, 9,6 miles, to *Teekeree*, a village belonging to SINDIAH, dependent on *Patan*. Road good. Soil greyiſh. A good deal of jungle by the road ſide.

March 30.—MARCHED N 56¼ W, 11,2 miles, to *Boondee*. Road in general good, but broken ground on both ſides of it. In ſome places ſtoney. Little cultivation, much jungle.

The town of *Boondee* is ſituated on the ſoutherly declivity of a long range of hills, which runs, nearly from eaſt to weſt. The palace of the Rajah, a large and maſſy building of ſtone, is about half way up ; and a kind of ſtone fortification runs to the top of the hill. The paſs, through the hill, lies to the eaſtward of the town, and is ſecured by a gate, at each end.

The Rajah, named Bishun Sing, of the tribe *Hára*, is aged nineteen or twenty. His family and that of *Kotah*, are nearly related. That of *Boondee* is the elder branch, and was formerly the chief, in point of power : but its poſſeſſions have been reduced, by the irruptions of the *Mahrattas*, and encroachments of the *Kotah* family, to the revenue of ſix lacks ; of which even a fourth part, or chout, is paid to the *Mahrattas* ; one half to Sindiah, and the other half to Holcar.

March 31.—Marched north, 10,28 miles, to *Dubláne*, a pretty large village in the diſtrict of *Boondee*. Road in general good. Soil grey and light : very duſty : little cultivation. Much jungle, conſiſting chiefly or *Paláſa (Butea frondoſa)*, *Bobool (Mimoſa nilotica)*, *Careel* or *Teantee* (a ſpecies of *Capparis)*, and *Jand (Adenanthera aculeata*, of Doctor Roxburgh, deſcribed by him in the *Aſiatick* Reſearches, Vol. IV, under the name of *Proſopis aculeata)*.*

April 1.—Marched N 69 E, to *Doogaree*, a pretty large village belonging to *Boondee*. It is nearly ſurrounded with hills, and has, to the weſt-ward, an extenſive lake. On the bank, where it joins to the village, is an old houſe of the Rajah, on a pretty high hill ; and on the extremity of a promontory, that runs into the lake, is a temple conſecrated to Ma'hadeo. Great part of the road on this day's march lay over *Schiſtus*, the ſtrata, of which were nearly vertical :

* *Proſopis ſpicigera.* Roxb. *Ind.* Pl. Vol. I, No. 63.

and

and numerous little peices of quartz lay ſcattered on the ground.

In the lake, with its leaves floating on the water, grows a ſpecies of *Menyanthes*, here called *Poorein* or *Teeptee*. The hills round the edge of the lake are compoſed of *Schiſtus*, diſpoſed in the ſame vertical ſtrata as that on the road. The promontory that runs out into the lake, has a vein of quartz running acroſs it. On theſe hills, I found the *Hees (Capparis Sepiaria)*, the *Hinguta* (a new genus of the order *Decandria Monogynia*, which has been deſcribed by Doctor Roxburgh, under the *Hindu* name *Garu*), and the *Evolvulus* which I formerly obſerved to abound on the hills of *Dholpore*, *Gualior*, and *Ditteah*.

April 2.—Marched N 62¼ E, 12,42 miles, to *Bahmen-gaung*, a village encloſed by a mud wall, with baſtions. It belongs to Aheliah Bai. Road over the ſame vertical oblique ſtrata of *Schiſtus* as yeſterday; with ſimilar little pieces of quartz, ſcattered on the ſurface. Little cultivation. Low foreſt, chiefly the *Butea-frondoſa* by the road ſide.

April 3.—Marched N 25 E, 10,8 mlies, to *Oomiára*. The road pretty good: little cultivation, and not much jungle; but a dry plain, in which the ſoil is grey, and very duſty.

This is a large town, ſurrounded by a wall, partly of mud, and partly of ſtone. Within the ſtone encloſe is a handſome houſe of the Rajah. Round both walls runs a ditch. The Raw or Rajah is of the tribe *Nirooka*, and a feudatory of the Rajah of *Jynagur*. The preſent one, named Bheem Sing, is only twelve or fourteen years of age. The tribute paid to *Jynagur* is 35,000 rupees to the Sircar, and 5,000 to the officers of government.

As we are now entered on the territories dependant on *Jayanagar* or *Ambhér*, ſome account may naturally be expected of the family, which for a long ſeries of ages has held dominion over them. The following particulars reſt on the authority of XAVIER DE SILVA the confidential ſervant of the preſent Rajah.

THE tribe of *Rajputs* to which this family belongs, is named *Cuchwáha*, and is of the *Suryabans*, or children of the Sun; being deſcended from RAMA, the celebrated Rajah of *Ayodhya*.

RAMA had two ſons, one named LOH, the other CU'SH; the deſcendants of LOH are named BUD-GU'-JER, and the decendants of CU'SH, *Cuchwáha*. From CU'SH, the *Jayanagar* chronologers reckon 210 Rajahs, in ſucceſſion, to PRIT,HI-RAJ, who ſucceeded to the *muſnud* of *Ambhér* in *Sumbut* 1559, or A. D. 1502; and died in *Sumbut* 1584, having reigned twenty-four years, eight months, and twenty days.

PRIT,HI-RAJ had eighteen ſons.

1. B,HA'RAMUL, who ſucceeded him.
2. BHI'M, eſtabliſhed the *Raj* or *Nirwir*.
3. SA'NCAJ'I who built *Sanganér*,
4. RAIMUL,
5. BHI'M-PA'L,
6. MUCTAJÌ,

(3–6:) Theſe four left no deſcendants.

To the remaining twelve ſons, PRIT,HI-RAJ, to avoid the contention which he forſaw was likely to happen after his death; aſſigned, in his lifetime, portions of territory, which deſcended to their offſpring, and are called the twelve chambers, (*Cut,hri*) of the houſe of *Cuchwáha*.

THE

THE names of these sons, of the families descended from them, of their districts and their present chiefs, together with the number of troops they can furnish, are as follow:

	Son's of PRIT,HI-RAJ.	Families descended from them.	District or Cut,hri.	Force in horse & foot.	Present Chiefs.
7	GOPAL his Son NAT,HA,	*Nat'hawat,*	*Samut,*	10,000	RAWUL INDER-SING.
8	PURINMUL,	*Purinmulout,*	Anciently *Bhusawab*; now *Bunhera,*	2,000	*T,hakur* BEIRI-SAL.
9	JUGMAL, his Son CUNGAR,	*Cungarout,*	Anciently *Samiwar* now *Bujpoor,*	7,000	*T,hakur* DILE-SING, and PAHAR-SING.
10	BIJABUN,	*Bijalout,*	Anciently *Nibalah,* now *Sambhera,*	2,000	*T,hakur* CHAPAN-SING.
11	SULTAN,	*Sultanout,*	*Canuta,*	5,000	*T,hakurs* SUREJ MUL, and KURIN-SING.
12	CHATERBHOJ,	*Chaterbhojout,*	Anciently *Buniar,* now *B eru,*	8,000	*T,hakur* BHAG-SING.
13	BULBHUDDER,	*Bulbhuddreut,*	*Ajroul,*	2,000	*T,hakur* CUSUL SING.
14	CALIAN,	*Calianout,*	*Caluwar,*	5,000	*T,hakur* RUNJIT-SING of *Chaab:*
				41,000	
15	RUPSI-BEYRAGEE,	His descendants were settled in the zillah of *Ajmer* about *Rupnagar* whose descendants were FUTTEH-SING and others in *Nirwir.*			Of these four Sons no descendants are now remaining.
16	SHAMIN-DAS,				
17	PURTAB-SING,				
18	RAM-SING,	District *Babila*	*Sabun, Cut hra*		

but to complete the number of chambers, four other tribes have been adopted in their room.

Families.	Districts.	Force.	Present Chiefs.
		41,000	
Gopawat,	*Mabar,*	2,000	*Rawul* BUKHTAWUR SING.
Bulbeerputa,	*Wangoh,*	2,000	*T,hakur* GULAB-SING.
Subaramputa,	*Beider,*	7,000	*Rawut* HURY-SING.
Cumbhani,	*Banskabua,*	5,000	*T,hakur* PADAM-SING.
		57,000	

But the whole families descended from the Rajahs of *Ambher*, are in number fifty-three; of which the principal (besides those already enumerated) are;

Rajawut, of which family is the preſent Rajah. They are the deſcendants of the Rajah MAN-SING, and were at firſt diſtinguiſhed by the name of *Man-ſingout*, — —	15,000	
Sekhawut, — —	30,000	The *T,hakur* of *Jinj-hua*, with others of leſs conſequence.
Niruca, — — —	20,000	Raw Rajah BUKHTAWAR-SING, of *Macheri*, and the Rajah of *Uniara*.
Hamirdeka Madhani, &c.	25,000	
	147,000	

THE ſucceſſion the Rajahs of *Ambher* from PRIT,HI-RAJ to the preſent time, is as follows:

PRIT,HI-RAJ — — A. D. 1502
BHARAMUL
BHUGWUNT-DAS
MAN-SING
5 JUGUT-SING
MAHA-SING
JEY SING I
RAM SING
KISHEN SING
10 BISHEN SING
JEY SING II ſurnamed SEWAY; was ſeated on the *muſnud* in *Sumbut* 1750, the 10th of *Phalgun Kriſhen Pucſh*; and died in *Sumbut* 1800.
ISHRI SING
MADU SING
PRIT,HI SING
15 PURTAB SING.

From PRIT,HI-RAJ to the preſent time, being a period of 295 years, we have fifteen reigns, giving $19\frac{2}{3}$ years to each reign. If we allow the ſame length to each

each of the reigns from CUSH the ſon of RAMA, to PRIT,HI-RAJ: we ſhall place CUSH about the year 2628 before CHRIST.

NEXT day, our tents were ſent on, but ſtopped at a fort named *Rampoora*, diſtant ſix miles. This formerly belonged to the Rajah of *Jynagur*, and was by him aſſigned to the prieſt of *Mobunt Jograj*; but at the ſettlement made in 1791 with TUCKOJEE HOLCAR, this fort, with a territory of 60,000 rupees, was ceded to him. It ſtill remained in his poſſeſſion, and the command of it was entruſted to a *Sekh*, named KIRPAL-SING. This man, hearing that we were going to the camp of GOPAL BHOW, the general of SINDIAH, with whom HOLCAR was then in a ſtate of actual hoſtility, arreſted our tents. No arguments could prevail with him to releaſe them, till a letter was ſent to HOLCAR, who was encamped at no great diſtance. He expreſſed great diſpleaſure at the conduct of KIRPAL-SING, and diſpatched a *jaſoos*, or meſſenger, with orders to attend our camp, and give peremptory orders to all his aumils, that none ſhould preſume to give us moleſtation.

THE obſtacle to our journey being thus removed, we marched on the eighth of *April*, N 47 E, 13,75 miles, to *Bürwârah*, which belongs to a *T,hakur*, named BICKERMAJEET, of the family *Rajáwut*, a relation and tributary of the Rajah of *Jynagur*. This is a mud fort, with round baſtions and a ditch.

April 9.—MARCHED N 39½ E, 9,3 miles, to *Bhaugwunt-gurh*, a village ſituated at the foot of a hill, and having a ſmall fort, or watch-tower, on the top of the hill. It is held by a *Rajpoot T,hakur*, named ABHEY-SING, and is dependant on the diſtrict of *Rintimbour*, or the new city *Madhoo-poor*, which is five or ſix coſs eaſtward. Road ſtony; in many

parts the ſame perpendicular and oblique ſtrata of *Schiſtus* as in ſome of the former marches. Very little cultivation near the road ſide, but a good deal of low jungle. Here I found, in conſiderable quantity, the *Mimoſus cinerea*, conſpicuous by its pink and yellow flowers. It is the ſame ſpecies that was found by Mr. BRUCE, in *Abyſſinia*, under the name of *Ergett y' Dimmo*, or bloody Ergett, in alluſion to which he propoſes to call it *Mimoſa Sanguinea*. The wood is ſaid to be very ſtrong and durable.

April 10.—MARCHED N 32¼ E, 10,94 miles, to *Kheernee*, a pretty large village, ſurrounded with a ſtone wall, belonging to SOOREJMUL, of the tribe *Rajáwut*, whoſe chief place of reſidence is at *Sowâr*, diſtant nine coſs towards the ſouth-weſt. Road in general good, but very heavy ſand for half a mile, in the bed of the river *Benás*. No cultivation, except a few fields cloſe to the village.

April 11.—MARCHED N 40½ E, 6,84 miles, to *Malárna*, a mud fort, with a double wall, round baſtions, and a ditch. It belongs to the *T,hakoor* BEIREESAL of *Jehelaia*, which is ſaid to be about fifteen coſs off. *Jynagur* is reckoned from hence twenty-eight or thirty coſs, *Rintimbour* eight coſs, and the new city three coſs farther, in the ſame direction. Road good: the firſt part ſandy; afterwards a blackiſh ſoil; now in ſtubble.

April 12.—MARCHED N 60 E, 18,39 miles, to *Amergurh*, a ſmall village, with the remains of a fort, now in ruins. It was part of the jagheer of DOWLET RAM (ſince dead), the miniſter of *Jynagur*. Road ſandy, near the end much broken ground.

FOR the direction of future travellers, it is neceſſary to remark, that by the miſinformation of our guides, we were led to *Amergurh*, which is out of the ſtraight road

road to *Khoosh-hâl-gurh*. By stopping at *Batudoh*, *Meenapára*, or *Mutchipoor*, either of which villages was as large, and seemed as well able to supply our wants as *Amergurh*, we should have avoided the broken ground, shortened the whole distance, and divided it more equally.

April 13.—Marched N 71 E, 6 miles, to *Khoosh-hâl-gurh*, a mud fort with double wall, round bastions, and a ditch; it belonged to Dowlet Ram, whose second son Hir-Narrain was then residing here; it was built by Khoosh-halee-ram, the elder brother of Dowlet Ram. Road sandy.

April 14.—Marched N 34 E, 11 miles, to *Peelaudoh*, a large village (said to contain 1000 houses) belonging to Jograj Mahu'nt. A cheelah of his was living here in charge of it. Road to-day smooth: first part sandy, afterwards a firm clay. The corn all got in.

Jynagur is reckoned thirty coss from hence, to the westward; *Carouly* eight coss, about E S E; *Khoosh-hâl-gurh* five coss, and *Hindoun* seven coss.

April 15.—Marched N 61 E, 17,12 miles to *Hindoun*, which has been a large city, and still contains pretty extensive buildings; but, from the depredations of the *Mahrattas*, is now very thinly inhabited. It belonged to Dowlet Ram, the son of whose maternal uncle was residing here. Road in general good: about half way, passed the dry bed of a river, which was deep sand. Much forest, especially in the first half of the road. Little cultivation.

April 16.—Marched N 49 E, 9,4 miles, to *Surout* a large village surrounded with a mud wall, and having within it a square mud fort, with double wall and ditch. It belongs to Bijey Sing or Bijey Naut, of the

the tribe *Sultánout*. Road good: much jungle: little cultivation; ſandy ſoil.

April 17.—MARCHED N 49 E, 11,42 miles, to *Biána*, which has been a large city, and included *Agra* among its dependencies. The town is ſtill conſiderable, and contains many large ſtone houſes; it was formerly the reſidence of a powerful Rajah, named BIJEY-PAL, of the tribe *Jádoun*, from whom the preſent family of *Carouly* is deſcended. But his principal city and fort was on the top of the adjoining hill, and the preſent town was only a ſuburb. The whole ridge of the hill is covered with the remains of large buildings, among which the moſt remarkable is a fort, called *Bijey-munder*, containing a high pillar of ſtone, called *Bkeem-lat*, or the *Tealee* or oilman's *lat* or ſtaff. This pillar is conſpicuous at a great diſtance. The town and diſtrict now belong to RAMJEET SING, the Rajah of *Bhirtpoor*. This prince is the ſon of the celebrated SOOREJ-MUL, head of the once powerful nation of the *Jâts*. Having rendered eſſential ſervice to SINDIAH, about the time of his entrance into *Hinduſtan*, he has been treated with more indulgence than moſt of the native princes, and his poſſeſſions are ſtill conſiderable, including three large forts, viz. *Deeg*, *Bhirtpoor*, and *Combhère*.

April 18.—MARCHED N 68½ E, 9,62 miles, to *Rudàwul*, a village belonging to the ſame Rajah. Road good, and the country in a good ſtate of cultivation.

April 19.—MARCHED N 62 E, 9,56 miles, to *Kànua*, a village alſo belonging to *Bhirtpoor*. Road good; country cultivated.

April 20.—MARCHED N 66¼ E, 9,59 miles, to *Futtehpoor-Sieri*. Road good: country well cultivated. A range of ſtony hills for a good part of the way, cloſe on the left. When we approach near to *Futtehpoor*, many ruins of tombs on the left.

Futtehpoor

Futtehpoor is enclosed with a high stone wall, of great extent, built by the Emperor AKBER. The space within does not appear to have ever been nearly filled with buildings, and the part now inhabited is but an inconsiderable village. This space is divided by a hilly ridge, of considerable elevation, which runs nearly from SW by W to NE by E, and extends beyond the enclosure, four or five miles on each side. These hills are composed of a greyish stone, and have supplied the materials of which the city wall is built.

NEAR the center of the enclosure, on the most elevated part of the rock, is built the tomb of SHAH SELIM CHEESTEE; by the efficacy of whose devotion, the Empress of AKBER, after remaining for several years barren, became pregnant; and bore a son; who, in honour of the saint, was named SELIM; and, on mounting the throne of *Hindustan*, assumed the title of JEHANGEER. The approach to this mausoleum irresistibly impresses the mind of a spectator with the sensations of sublimity. The gate a noble gothic arch, in a rectangular screen of majestic elevation, stands on the brow of the hill towards the south. To this you ascend, by a flight of steps, the uppermost of which, being equal in length to the breadth of the screen, every one, in descending, is encreased, by the breadth of a step. Thus the whole forms half the frustum of a pyramid, the magnitude and simplicity of which, compared with the rugged surface of the rock, improves the grandeur of the prospect. From the top of this gate, the view of the surrounding country is extensive, and highly diversified. The mausoleum at *Agra*, at the distance of twenty-three miles, is distinctly seen.

BY this gate, you enter iuto a square court, of 440 feet, within the walls. All around is a wide verandah, containing ranges of cells, for the accommodation of Durveishes. In the center, is a square building, of white marble, the sides of which are beautifully cut into lattice-work. The side of this, measured within, is forty-

forty-six feet. The verandah is about fifteen feet broad, on every side; and in the center is a small chamber, which contains the tomb; a neat sarcophagus, enclosed with a screen of latticed marble, inlaid with mother of pearl. The delicacy of the workmanship renders this an object of exquisite beauty.

IMMEDIATELY to the westward of this, on the same ridge, is an ancient palace of AKBER. It is a rude building, of red stone; and of so irregular a form, as not to be easily described. In one square court, the pavement is marked with squares, in the manner of the cloth used by the *Indians*, for playing the game called *Pacheess*. Here it is said AKBER used to play at this game; the peices being represented by real persons. On one side of the court is a little square apartment, in the center of which stands a pillar; supporting a circular chair of stone, at the height of one story. The access to it is, by narrow ways of stone hollowed out, like troughs, which extend, from the four sides of the apartment, to the chair. Here the Emperor used to sit, and direct the moves of the people who represented the peices, in the game above mentioned. Near to this, on the plain below, is a little circular tower, planted thick on all sides, and from top to bottom, with elephant's teeth; and terminated above, with a cupola, under which, it is said, the king used to sit, to view the combats of elephants.

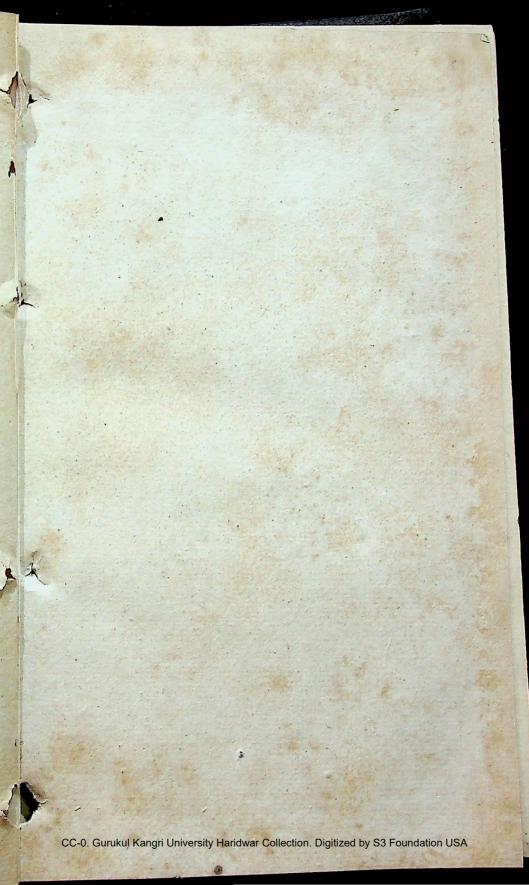
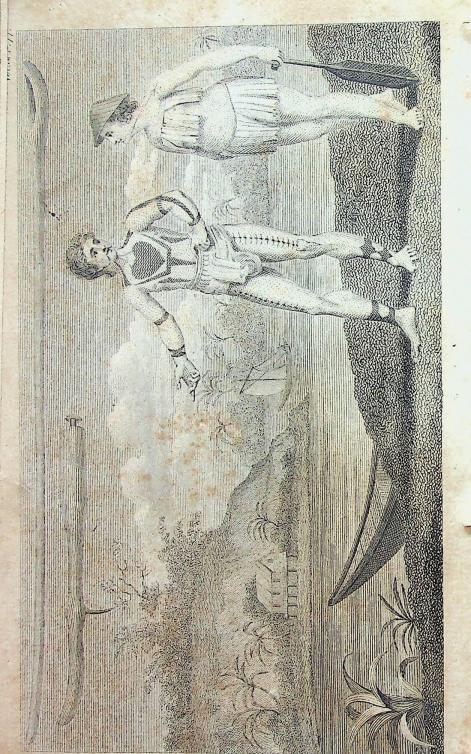
BEING now within a forced march of the conclusion of our journey, we marched a little after midnight (N 77 E, 22,42 miles), and next morning, *April* 21, arrived at the mausolum of MUMTAZA ZEMANS at *Agra*; having been exactly fourteen months.

ADDENDUM TO THE NOTE, PAGE 8.

Such was the informa ion obtained by the learned president; but Mr. GILCHRIST, whose diligent researches into *Hindustani* philology have infinite merit (preface the dictionary, p. xxxiii,) on the authority of GOOLZAAR IBRAHEEM ascribes this little poem to MEER QUMUR-OOD'-DEEN a native of *Dehli*, wh[illegible] A. H. 1196 (A. D. 1781).

III. *An*

Inhabitants of the Poggy or Naſsau Islands.

III.

An ACCOUNT *of the* INHABITANTS *of the* POGGY ISLANDS, *lying off* SUMATRA.— By JOHN CRISP, *Esq.*

AT a period when ſo many important voyages of diſcovery have been recently effected, and ſuch various new countries and new races of men made known, the account will, probably, appear too trivial, to excite attention of either the merchant, the politician, or the philoſopher. There is however, one circumſtance reſpecting the inhabitants of the *Naſſau* or *Poggy* iſlands, which lie off the Weſt coaſt of *Sumatra*, which may be conſidered as a curious fact in the hiſtory of man, and as ſuch, not unworthy of notice, From the proximity of the iſlands to *Sumatra*, which, in reſpect to them, may be conſidered as a continent, we ſhould naturally expect to find their inhabitants to be a ſet of people originally derived from the *Sumatra* ſtock, and look for ſome affinity in their language and manners; but, to our no ſmall ſurprize, we find a race of men, whoſe language is totally different, and whoſe cuſtoms and habits of life indicate a very diſtinct origin, and bear a ſtriking reſemblance to thoſe of the inhabitants of the late diſcovered iſlands in the great Pacifick Ocean. It was a confuſed idea of this circumſtance which firſt excited my curioſity, and induced a deſire to make a more minute inquiry into the hiſtory of theſe people than hath hitherto been effected; for, wotwithſtanding the vicinity of theſe iſlands to an

an *Engliſh* ſettlement, we, as yet, had but a very imperfect knowledge of the inhabitants. An attempt had been made, between forty and fifty years paſt, to make a ſettlement among them, and to introduce the cultivation of pepper, but this deſign was fruſtrated, by the improper conduct of the perſon to whom the management of the buſineſs was entruſted. The imperfect account which was given of the people by the perſon appointed to go to the iſlands on behalf of the *India* Company, and another, not more ſatisfactory, by Captain FOREST, are inſerted in Mr. DALRYMPLE's *India* Directory; and, as far as I knew, theſe accounts conſtituted the whole of our knowledge of theſe iſlands.

THE *Naſſau* or *Poggy* iſlands form part of a chain of iſlands which lie off the whole length of the Weſt Coaſt of *Sumatra*, at the diſtance of twenty to thirty leagues; the northern extremity of the northern *Poggy* lies in latitude 2° 18′ S, and the ſouthern extremity of the ſouthern iſland in latitude 3° 16′ S. The two are ſeparated from each other by a very narrow paſſage called the ſtrait of *See Cockup*, in latitude 2° 40′ S. and longitude about 100° 38′ Eaſt from *Greenwich*.

I LEFT Fort *Marlborough* the 12th of *Auguſt*, 1792, in a ſmall veſſel, and made the ſouthern *Poggy* on the morning of the 14th; coaſting along which we reached the ſtraits of *See Cockup*, where we came to an anchor at one o'clock the ſame day.

THESE ſtraits are about two miles in length, and a quarter of a mile over: they make very ſafe riding for ſhips of any ſize, which lie perfectly ſecure from every wind, the water being literally as ſmooth as in a pond. The chief defect, as an harbour, is the great depth of water, there being twenty-five fathom cloſe in ſhore, and forty-five fathom in the mid channel.

channel. While lying at anchor, we could plainly discern the high land of *Sumatra*. In the ſtraits are ſcattered ſeveral ſmall iſlands, each of which conſiſts of one immenſe rock, and which probably was originally connected with the main iſlands. The face of the country is rough and irregalar, conſiſting of high hills or mountains, of ſudden and ſteep aſcent; and the whole appearance of ſuch iſlands, in common with *Sumatra*, bears ſtrong marks of ſome powerful convulſion of nature. The mountains are covered with trees to their ſummits, among which are found ſpecies of excellent timber; the tree called by the *Malays Bintangoor*, and which on the other *India* is called *Pohoon* abounds here. Of this tree are made maſts, and ſome are found of ſufficient dimenſions for the lower maſt of a firſt rate ſhip of war. During my ſtay here which was about a month, I did not diſcover a ſingle plant which we have not on *Sumatra*. The ſago tree growing in plenty, and conſtitutes the chief article of food to the inhabitants, who do not cultivate rice; the cocoanut tree and the bamboo, two moſt uſeful plants, are found here in great plenty. They have a variety of fruits, common in theſe climates, ſuch as mangoſteens, pine-apples, plaintains, *Buah*, *Chupah*, &c. The woods in their preſent ſtate are impervious to man; the ſpecies of wild animals which inhabit them are but few; the large red deer, ſome hogs, and ſeveral kinds of monkey are to be found here, but neither buffaloes, nor goats; nor are theſe foreſts infeſted, like thoſe of *Sumatra*, with tigers or any other beaſt of prey. Of domeſtic poultry, there is only the common fowl, which probobly has been originally brought from *Sumatra*: But pork and fiſh conſtitute the favourite animal food of the natives. Fiſh are found here in conſiderable plenty and very good. On the reefs of coral, which extend from the ſhore, and are frequently dry at low water, are found various kinds of ſhell fiſh, but I did not diſcover any which I had reaſon to ſuppoſe uncommon. The ſhell of a large ſpecies of *nautilus*, marked like *zebra*, is frequently

quently picked up on the ſhore of theſe iſlands, and having been informed that one of theſe ſhells with its fiſh in it would be acceptable at home, I offered the natives their own terms to procure me one, but they all aſſured me that it was abſolutely out of their power to comply with my wiſhes; that the ſhell is frequently driven on the ſhore, but always empty; that it comes from the ſea, and is not to be found on the rocks, and that no one on the iſland had ever ſeen one on the iſland had ever ſeen one of the ſhells in the ſtate I required.

I FOUND here ſpecies of cockle, the ſhell of which was encloſed in the moſt ſolid kind of coral rock; the aperture of the rock was ſufficient to permit the ſhell of the cockle to open in ſome degree, but two ſmall to permit removing it without breaking the rock. Having found them of different ſizes, and it being a ſpecies of the *Keemoo* which grows to a very large ſize, it ſhould ſeem that the cavity of the rock encreaſes as the fiſh grows If, according to Mr. HUNTER's theory, the animal has a power of abſorbing part of its own ſhell, this power may perhaps extend to the rock which contains it, and whoſe ſubſtance is of a ſimilar nature.

NEAR the entrance of the ſtraits of *See Cockup* on the northern iſland, are a few houſes inhabited by ſome *Malays* from Fort *Marlbrough*, the place is called *Toongoo:* theſe people reſide here for the purpoſe of building large boats, called *Chuneahs*, the timber and planks for which are found cloſe at hand. Among theſe *Malays* I found one intelligent man, who had reſided two years at this place, during which he had acquired a competent knowledge of the language of the natives. I had alſo brought an interpreter with me who ſpoke the language ſome time at *Padáng*, a *Dutch* ſettlement on the Weſt Coaſt of *Sumatra*, where he had acquired ſome knowledge of the *Malay* tongue; by means of theſe people I was at no loſs for communication with the natives,

and

and had an opportunity of having the accounts confirmed by making uſe of the different interpreters.

THE name of *Naſſau* has probably been given to theſe iſlands by ſome *Dutch* navigator. By the inhabitants themſelves they are called *Poggy*, and the natives are called by the people of *Sumatra*, *Orang Mantawee*; this latter is probably from their own language, *Mantaoo* ſignifying a man.

AFTER having been two days at an anchor, the natives began to come down from their villages in their canoes, bringing fruit of various kinds, and on invitation they readily came on board. The chief of *See Cockup*, a village in the ſtraits, was among them, but not diſtinguiſhed from the reſt by dreſs, or dignity of demeanor. On coming on board the veſſel they did not ſhew any ſigns of apprehenſion or embarraſſment, but expreſſed a ſtrong degree of curioſity, and a deſire to examine every thing minutely. We preſented them plates of boiled rice, which they would not touch till it had been previouſly taſted by one of our own people; after which they eat it to the laſt grain. This circumſtance ſeemed to indicate the uſe of poiſon among them. They behaved while on board with much decorum, and did not ſhew the leaſt diſpoſition for pilfering, but freely aſked for what they ſaw and wiſhed to poſſeſs; not expreſſing however any ill will, when they met with a denial. We made them preſents of beads, ſmall looking glaſſes, *Birmingham* japanned ſnuff boxes, &c. all which were very acceptable, as was alſo tobacco, of which they appear to be very fond; they uſe it by ſmoaking. They appeared to live in great friendſhip and harmony with each other, and voluntarily divided among their companions what was given to them.

AFTER having remained ſome hours on board, during

ing which time they behaved with much quietneſs, they returned to their village ; and after this we were daily viſited by many of their canoes, bringing fruit, a few fowls, &c. Several canoes came alongſide the veſſel with only the women in them ; they at firſt expreſſed ſome apprehenſion at coming on board ; but their men far from ſhewing any diſapprobation, rather encouraged them to come into the veſſel, and ſeveral ventured up the ſide. When in their canoes, the women uſe a temporary dreſs to ſhield them from the heat of the ſun ; it is made of the leaves of the plantain tree, of which they form a ſort of conical cap, and there is alſo a broad-piece of the leaf faſtened round their body, over their breaſts, and another piece round their waiſt. This leaf readily ſplits, and has the appearance of a coarſe fringe. When in their villages, the women, like the men, wear only a ſmall piece of cloth round their middle. Among them we obſerved ſome of a very pleaſant countenance, with fine expreſſive eyes. Mr. BEST, a military gentleman of the eſtabliſhment, with whoſe company I was favored on this trip, went up to one of their villages, attended only by the *Malay* interpreter and a *Malay* ſervant. He was received with great cordiality and civility, and ſtaid two nights at their village. Many of the people had never before ſeen an *European*, and with much curioſity examined his dreſs, particularly his ſhoes.

DURING a ſtay of about a month among them I collected the following particulars, reſpecting their manners and cuſtoms, the truth of which I was careful to have confirmed, by making my enquires of different perſons, and by the means of different interpreters.

THE inhabitants of *Poggy* iſlands are but few ; they are divided into ſmall tribes, each tribe occupying a ſmall river, and living in one village. On the northern *Poggy* are ſeven villages, of which *Cockup* is the chief ; on the ſouthern *Poggy* are five. The whole number of people on the two iſlands amounts, by

by the beſt accounts I could procure, only to 1400; the inland parts of the iſlands are uninhabited. *Porah* or *Fortune* iſland is inhabited by the ſame race of people, and is ſaid to contain as many inhabitants as the two *Poggys*. When we conſider the mildneſs of the climate, the eaſe with which the inhabitants procure wholeſome nutritive food, and the little reſtraint laid on the communication between the ſexes, this paucity of inhabitants ſeems to indicate that the period when their reſidence in theſe iſlands commenced, cannot be very remote. Their houſes are built of bamboos and raiſed on poſts; the under part is occupied by poultry and hogs, and, as may be ſuppoſed, much filth is collected there. The whole of their clothing conſiſts of a piece of coarſe cloth, made of the bark of a tree, worn round the waiſt, and brought acroſs between the thighs; they wear beads and other ornaments about the neck, of which a ſmall green bead is the moſt eſteemed: though cocoa-nut trees are in ſuch plenty, they have not the uſe of oil; and their hair, which is black, and might grow long and graceful, is, for want of it, and the uſe of combs, in general matted and plentifully ſupplied with vermin, which they pick out and eat; a filthy cuſtom, but very common among ſavage people. They have a method of filing or grinding their teeth to a point, which is alſo in uſe on *Sumatra*.

Their ſtature ſeldom exceeds five feet and a half, and many among them fall ſhort of this: ſome of them are extremely well made, with fine turned limbs and expreſſive countenances: their colour is like that of the *Malays*, a light brown or copper colour. The cuſtom of *tattooing* or imprinting figures on the ſkin is general among them, of which I ſhall ſay more preſently.

The principal article of their food is ſago, which is found in plenty on theſe iſlands. The tree, when ripe is cut down, and the pith which forms the ſago, taken

taken out, and the mealy part ſeparated from the fibrous, by maceration and treading it in a large trough continually ſupplied with freſh water: the meal ſubſides and is kept in bags made of a kind of ruſh; and in this ſtate it may be preſerved for a conſiderable time. When they take it from their ſtore for immediate uſe, ſome farther preparation of waſhing is neceſſary; but they do not granulate it. One tree will ſometimes yield two hundred pounds of ſago: when they cook it, it is put into the hollow joints of a thin bamboo, and roaſted over the fire.

Besides this article, they have a variety of nouriſhing plants, ſuch as the yam, the ſweet potatoe, the plaintain, &c. Their animal food conſiſts of fowls, hogs and fiſh; ſhell fiſh they eat raw. The uſe of betel, ſo common in the Eaſt, is unknown to them, and I obſerved in many marks of the ſcurvy in their mouths.

Their arms conſiſt of a bow and arrows. The bow is made of the *Neebong* tree, a ſpecies of palm, which, when of a proper age, is very ſtrong and elaſtic; the ſtrings are formed of the entrails of ſome animal; the arrow is made of a ſmall bamboo or other light wood, headed with braſs, or with another piece of wood fixed to the end of the ſhaft and cut to a point: theſe arrows, we were told, are ſometimes poiſoned. Though ſtrangers to the uſe of feathers to ſteady the flight of the arrow, they nevertheleſs diſcharge it from the bow with much ſtrength and ſkill. With a mongrel breed of dogs, probably procured originally from *Sumatra*, they rouſe the deer in the woods, which they ſometimes kill with their arrows; they alſo kill monkeys by the ſame means, and eat their fleſh. We obſerved among them a few who were in poſſeſſion of *creeſes* or *Malay* daggers.

Their knowledge of metals is entirely derived from

from their communication with the inhabitants of *Sumatra*. They are ſtill ſtrangers to the uſe of coin of any kind, and a metal coat button would be of equal value in their eſteem with a piece of gold or ſilver coin, either of which would immediately be hung about the neck as an ornament. A ſort of iron hatchet or hand-bill, called *parang*, is in much eſteem with them, and ſerves as a ſtandard for the value of various commodities, ſuch as cocoa nuts, coolit coys, poultry, &c.

WE were informed that the different tribes of *Orang Mantawee* who inhabit the *Poggy* iſlands never war with each other; to which account we could readily give credit from the mildneſs of their diſpoſition. Indeed the friendly footing upon which they appeared to live one with another was a circumſtance too ſtriking to eſcape our notice; during our whole ſtay with them, and while diſtributing various preſents among them, we never heard a ſingle diſpute, nor obſerved one angry geſture. They however informed us that a feud has long ſubſiſted between the inhabitants of the *Poggy* iſlands, and thoſe of ſome iſland to the northward, whom they called *Sybee*. Againſt theſe people they ſometimes undertake expeditions in their war canoes; but it did not appear that they had engaged in any undertaking of this kind lately. Mr. BEST meaſured one of theſe war canoes, which was preſerved with great care under a ſhed; the floor of it was twenty-five feet in length, the prow projected twenty-two feet, and the ſtern eighteen, making the whole length ſixty-five feet; the greateſt breadth was five feet, and the depth three feet eight inches. For navigating in their rivers and the ſtraights of *See Cockup*, where the ſea is as ſmooth as glaſs, they uſe a ſmall canoe made from a ſingle tree, conſtructed with great neatneſs, and the women and young children are extremely expert in the uſe of the paddle.

THE religion of this people, if it can be ſaid that they

they have any, may truly be called the religion of nature. A belief of the exiſtence of ſome powers more than human cannot fail to be excited among the moſt uncultivated of mankind, from the obſervations of various ſtriking natural phœnomena, ſuch as the diurnal revolution of the ſun and moon; thunder and lightning; earthquakes, &c. &c. nor will there ever be wanting among them ſome of ſuperior talents and cunning who will acquire an influence over weak minds, by aſſuming to themſelves an intereſt with, or a power of controuling thoſe ſuper-human agents; and ſuch notions conſtitute the religion of the inhabitants of the *Poggys*. Sometimes a fowl and ſometimes a hog is ſacrificed to avert ſickneſs; to appeaſe the wrath of the offended power, or to render it propitious to ſome projected enterprize: and Mr. BEST was informed that omens of good or ill fortune were drawn from certain appearances in the entrails of the victim. But they have no form of religious worſhip, nor do they appear to have the moſt diſtant idea of a future ſtate of rewards and puniſhments. They do not practiſe circumciſion.

THE mode of diſpoſing of their dead bears a reſemblance to that of the *Otaheitans*. Very ſhortly after death the corpſe is carried to a certain place appropriated for the purpoſe, where it is depoſited on a ſort of ſtage, called in their language *Rati Aki*; it is dreſſed with a few beads or ſuch ornaments as the perſon was accuſtomed to wear in his life time, and after ſtrewing a few leaves over it, the attendants leave the ground, and proceed to the plantation of the deceaſed, where they fell a few trees of his planting, and return to their homes. The corpſe is left to rot, and the bones fall to the ground.

AMONG a people whoſe manners are ſo ſimple whoſe wants are ſo eaſily ſupplied, and whoſe poſſeſſions are ſo circumſcribed, we are not to look for any complex ſyſtem of juriſprudence: indeed their code of laws may be comprized in a few lines.

THEIR chiefs are but little diſtinguiſhed from the community, either by authority or by property, their pre-eminence being chiefly diſplayed at public entertainments, of which they do the honours. They have no judicial powers; all diſputes are ſettled, and crimes adjudged, by a meeting of the whole village.

INHERITANCE is by male deſcent; the houſe or plantation, the weapons and tools of the father, paſs to his male children. Theſt, when to a conſiderable amount, and the criminal is incapable of making reſtitution, is liable to be puniſhed by death.

MURDER is puniſhable by retaliation; the murderer is delivered to the relations of the deceaſed, who may put him to death. I was however informed theſe crimes are very rare.

IN marriages, the matter is ſettled between the parents of the young perſons, and when agreed upon, the young man goes to the houſe of the bride, and takes her home; on this occaſion a hog is generally killed, and a feaſt made. Polygamy is not allowed.

IN caſes of adultery, where the wife is the offender, the injured huſband has a right to ſeize the effects of the paramour, and ſometimes puniſhes his wife by cutting off her hair. When the huſband offends, the wife has a right to quit him, and to return to her parent's houſe; but in this ſtate of ſeparation ſhe is not allowed to marry another; however, in both theſe caſes, the matter is generally made up, and the parties reconciled; and we were informed that inſtances of their occurrence were very unfrequent. Simple fornication between unmarried perſons is neither a crime nor a diſgrace: and a young woman is rather liked the better, and more deſired in marriage, for

F 4 having

having borne a child; ſometimes they have two or three, when, upon a marriage taking place, the children are left with the parents of their mother. The ſtate of ſlavery is unknown to theſe people.

The cuſtom of tattooing is general throughout theſe iſlands. They call it in their language *teetee*. They begin to imprint theſe marks on boys of ſeven years of age, but they only trace at firſt a few outlines. As they advance in years, and go to war, they fill up the marks, the right to which depends on having killed an enemy. Such is the account they gave us, and it is probable enough that this cuſtom may originally have been intended as a mark of military diſtinction; but ſuch original intention cannot at preſent have place, as the marks are common to every individual, and wars ſcarce occur once in a generation. The figures imprinted are the ſame throughout, or the variation, if any, is very trifling, excepting that, in ſome of the young men, the outline only of the broad mark on the breaſt is traced, but this is filled up as they grow older. The women have a ſtar imprinted on each ſhoulder, and generally ſome ſmall marks on the back of the hands. Theſe marks are imprinted with a pointed inſtrument, conſiſting of a braſs wire fixed perpendicularly into a piece of ſtick about eight inches in length: this piece is ſtuck with another ſmall long ſtick with repeated light ſtrokes. The pigment uſed for this purpoſe is made of the ſmoke collected from a ſpecies of reſin, which is mixed with water; the operator takes a ſtem of dried graſs, or a fine piece of ſtick, and dipping the end in the pigment, traces on the ſkin the outline of the figure, with great ſteadineſs and dexterity; then, dipping the braſs poinin the ſame compoſition, he with very quick and light ſtrokes drives it into the ſkin, tracing the outline before drawn, which leaves an indelible mark. Mr. Best ſubmitted to the operation on his leg, and found it attended with ſome pain.

Such

SUCH are the cuftoms and manners of the inhabitants of the *Poggy* iflands which lie within fight of *Sumatra.* The many particulars in which they differ from any fet of inhabitants of the latter ifland put it in my opinion beyond a doubt that they are of a different origin, but from whence they came it may not be eafy, and probably will not be thought of importance, to trace. They have no clear tradition to affift in fuch an enquiry. When Mr. BEST was at their village, on afking from whence they originally came, they told him from the fun, which he underftood as fignifying from the eaftward.

As the founds which exprefs ideas are arbitrary, and it not being probable that people who have never had communication fhould hit upon the fame founds to exprefs the fame ideas, affinity in language may be confidered as one of the fureft indications of famenefs of origin; but even in judging from this criterion, a variety of circumftances may render us liable to error. I have however fubjoined a pretty copious fpecimen of the language of the *Poggy* iflands.

But another circumftance, which I think might affift in tracing the origin of thefe people, is the figures ufed in tattooing their bodies; for as all the men are marked according to the fame pattern nearly, if any people fhould be difcovered among whom this cuftom prevails, and whofe bodies are tattooed, generally, with figures of the fame kind, it would afford no flight prefumption of a common origin. I have therefore accompanied this account with a fketch of a man and a woman of thefe iflands, as alfo a drawing of the inftruments ufed in making thefe marks; the execution greatly needs an apology; but I am no draughtfman, and can only anfwer for the exactnefs with which I copied thefe figures.

I HAD

I HAD intended to have examined the whole chain of iſlands which lie off *Sumatra*, and which are inhabited by very different ſets of people, but a number of croſs and untoward accidents prevented the accompliſhment of my original deſign.

SPECIMEN OF THE LANGUAGE OF THE POGGY ISLANDS.

One	Sarah	Teeth	Chone
Two	Dua	Tongue	Leelah
Three	Telloo	Chin	Batela
Four	Apat	Belly	Barah
Five	Leemah	Hand	Kavaye
Six	Anam	Foot,	Daray
Seven	Peeloo (for Peetoo)	Blood	Lorow—Logow
Eight	Balloo	Day	Mancheep
Nine	Seewa	Night	Geb Geb—Choic Boh
Ten	Pooloo	Sleep	Mareb
Twenty	Duah Tarah	Dead	Mataye Maloſſay
An hundred	Sama Wattoo	White	Maboolow
Mankind	Seree Manooah	Black	Mapoochoo
A man	Mantaow	Good	See Maroo
A woman	Senan Allip	Fire	Ovange—Bobengang
Father	Ookooee	Water	Jojar
Mother	Eenah	Earth	Polack
Head	Ootay	Stone-rock	Bookoo
Eyes	Matah	Hog	Babooee Sakoko
Noſe	Affak	Fowls	Gago
Hair	Ali	Bird	Oomale
Eye-brows	Cakaloo	Egg	Ajoloh
Eye-laſhes	Rapit	Fiſh	Eebah
Ears	Talinga	Sun	Chooloo

Moon	Lago	Prong or Hatchet	Taagla
Stars	Panyean	Cocoa-nut	Toata
God	Saraloggye Saneetoo	To fight	Sagack
Naked	Tocomong	The Sea	Koat
To ſpeak	Maneeboo	A large Boat	Kalaba
Here	Kai	A Canoe	Avauk
There	Kaſau	Sour	Malaja
Come	Kai comong	Sweet	Makiki
Go	Kainang	Wood	Loven
Yes	Oho	The wind	Rooſa
No	Tani	A bow	Logue
Hard	Makala	An arrow	Rorow
Soft	Mamama	Clouds	Boojoot
Rough	Mokara	Thunder	Sálagoo
Smooth	Malooploop	Lightning	Beela
Straight	Moipoiroo	Earthquake	Tataoo
Crooked	Tamaipoiroo	A Dog	Jojo

NAMES OF PERSONS.

NAMES OF MEN.

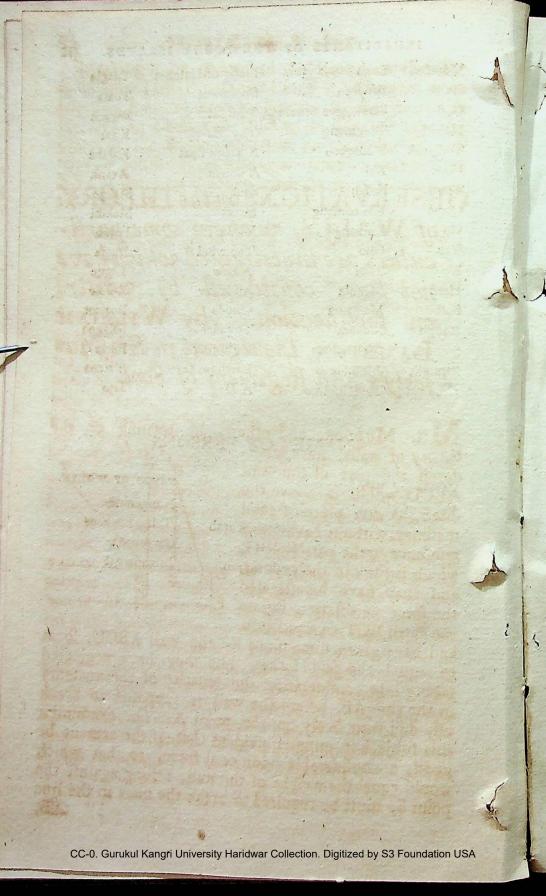
Rajah of *Cockup*,
————
————
————

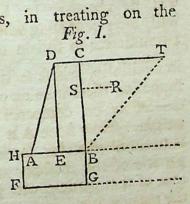
Mengriah
Goolooh Tarah
Marecat
Jagula Kayoo

NAMES OF WOMEN.

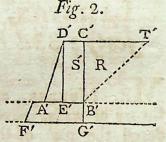
Nangſannee
Tallee Sheeboo
Goryebooh
Tamaneegal

IV. OB-

IV.

OBSERVATIONS *on the* THEORY *of* WALLS, *wherein some particulars are investigated which have not been considered by writers on fortification.* By William Lambton, *Lieutenant in His Majesty's 33d Regiment of Foot.*

Mr. Muller, and others, in treating on the theory of walls, have confidered the part of the wall ABCD which is above the ditch, as one piece of folid mafonry, without having any reference to the part FGBH, which is funk in the ground, and they have inveftigated the force neceffary to fuftain the earth BCT, in equilibrio, and have given dimenfions for the wall ABCD, fo as to equal the faid force; but they have neglected taking into confideration the tenacity of the mafonry in the line AB, where the wall is fuppofed to break off, and turn freely on the point A. On examining this fubject it appears evident that, if the cement be good, a confiderable additional force, to that which would equal the weight of the wall, refting againft the point S, muft be required to break the mafs in the line AB,

AB, taking it for granted at the ſame time that the foundation HBGF is ſo fixed in the ſolid earth, as to require a force to move it, ſuperior to that which is required to effect the breakage in the line AB: for otherwiſe the whole would turn on the point F, and muſt be conſidered as having no adheſion in the line FG; at the ſame time the force to ſeparate it from the earth being eſtimated.

In order therefore to obtain the meaſure of ſuch a force as is above ſtated, let A′ B′ and B′ C′, in the annexed figure, be of any given dimenſions, and let a weight be applied to the póint S′ in the horizontal direction of the center of gravity R, of the triangle B′ C′ T′ (which triangle repreſents the ſection of the earth reſting freely againſt the wall) and determine by experiment, what weight will be neceſſary to break the wall, after deducting what would be ſufficient to ſuſtain the earth

Fig. 2.

in equilibrio, whoſe ſection is repreſented by B′ C′ T′ ſuppoſing there were no coheſion, and call that weight w—let w be compared with the above ſuſtaining weight. Now ſince A is the point on which the wall is to turn, whatever force be required to ſeparate one particle of the maſonry in the line A′ B′, the momentum of that particle will be expreſſed by multiplying the particle itſelf into its diſtance from the point A′. And, from a well known property in the center of gravity, the momentum of all the particles in the line A′ B′ will be expreſſed by the line itſelf multiplied into the diſtance of its center of gravity from the point A′; which will thereforebe defined by $\frac{1}{2}A'B' \times A'B' = \frac{1}{2}A'B'^2$. Now, ſince the weight w is to be applied to the point S, the momentum of w will be expreſſed by $w \times B'S'$; and

and this quantity, from the nature of the problem, muſt be as $\frac{1}{2}A'B'^2$: conſequently, we have w as $\frac{\frac{1}{2}A'B'^2}{BS}$. Now, this being determined, the weight w may alſo be determined which will break any other wall, under the like circumſtances, whatever may be the dimenſions of AB and BC (or BS) as in figure 1ſt. For ſeeing that it will be in the conſtant ratio of $\frac{1}{2}AB^2$ directly, and BS inverſely, and if $\frac{\frac{1}{2}A'B'^2}{BS}$ be called b, we ſhall have $W : w :: \frac{\frac{1}{2}AB^2}{BS} : b$, and $W = \frac{\frac{1}{2}AB^2 \times w}{BS \times b}$, and therefore $W \times BS = \frac{\frac{1}{2}AB^2 \times w}{b}$, the momentum of W;— which quantity muſt be added to the momentum of the wall given by Mr. Muller.

Now, if $AE = an$, $EB = x$, $BC = a$, and therefore $BS = \frac{2}{3}a$, according to Mr. Muller's firſt profile; then $\frac{\frac{1}{2}AB^2 \times w}{b} = \frac{\frac{1}{2}\overline{na+x}^2 \cdot w}{b}$; which added to his equations for ſtone walls, we have $x^2 + 2nax + \frac{2}{3}n^2a^2 + \frac{\frac{1}{2}\overline{na+x}^2 \times w}{b} = \frac{8}{27}s^2a^2$ and therefore $\overline{2b+w} \times x^2 + \overline{2b+w} \times 2nax = a^2 \times \overline{\frac{16}{27}s^2 b - \frac{4}{3}\overline{b+w} \times n^2}$ which, reduced, gives $x = a\sqrt{n^2 + \frac{\frac{16}{27}s^2 b - \frac{4}{3}\overline{b+w} \times n^2}{2b+w}} - n$, a general theorem for ſtone walls, whatever be the value of b and w.

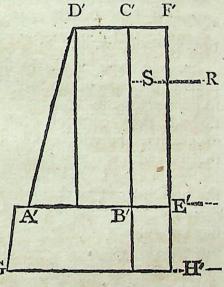
Since the ſpecific gravity of ſtone to that of brick is as 5 to 4, if the above momentum for the wall be reduced in that ratio, or its equal ($\frac{8}{27}s^2a^2$) increaſed; there will ariſe $x^2 + 2nax + \frac{2}{3}n^2a^2 + \frac{\frac{1}{2} \times \overline{na+x}^2}{b} = \frac{10}{27}s^2a^2$, which reduced gives $x = a\sqrt{n^2 + \frac{\frac{2}{27}s^2 b - \frac{4}{3}\overline{b+w} \times n^2}{2b+w}} - an$, a general theorem for brick walls.

In

In order to illuſtrate this theory by examples, it will firſt be neceſſary to obtain the value of b and w from experiment. Let then ABCD be a wall of any ſmall given dimenſions, continued from the foundation ABGF, which is of the ſame piece of maſonry with the wall, and well ſecured in the ſolid earth; and to prevent a fraction in any other part than in the line AB, let an inflexible iron bar be applied to the ſide BC, ſo that a force applied to any point s, may act upon the whole ſide at once; and for the purpoſe of preſerving the center of gravity in a line that biſects AB in H, (which will ſave trouble in the preſent computation) let there be another iron bar of equal weight to the former placed on the oppoſite ſide AD. Now let Q repreſent the weight of the maſs ABCD, including the two bars ſuſpended at H. Then if W be a weight, acting at S, by a line paſſing freely over the pulley p, and ſuch as to ſuſtain the wall and bars *in equilibrio*, ſuppoſing no coheſion in the line AB, we ſhall have $W : Q :: AH : AB + BS$ and $W = \frac{AH \times Q}{AB + BS}$; that is ſuppoſing $AB = I$, $BC = 3$, and $BS = 2 = 4H$, W will be $= \frac{1}{6}Q$. But Q being as $AB \times BC$, is therefore $= 3$, in this inſtance, whence $W = \frac{1}{2}$. Now to determine the force neceſſary to overcome the tenacity, let an additional weight w be applied to W, increaſing it till it become ſufficient for the purpoſe, which having a known proportion to the weight W, will alſo have a determinate proportion to Q. Suppoſe, for example, it were found $= \frac{1}{3}W$, then, W being $= \frac{1}{2}$, w becomes equal $\frac{1}{6}$. Now ſince $b = \frac{\frac{1}{2}AB^2}{BS}$, it becomes equal $\frac{1}{4}$ in this caſe: which two values of b and w, being thus determined by experiment,

in the two foregoing equations. Hence $a\sqrt{n^2 + \frac{\frac{16}{27}s^2b - \frac{4}{3}b + w \times n^2}{2b+w}} - n$ becomes for $= a\sqrt{\frac{3}{4}n^2 + \frac{2}{9}s^2} - n$, for stone walls; and $a\sqrt{n^2 + \frac{\frac{20}{27}s^2b - \frac{4}{3}b + w \times n^2}{2b+w}} - n = a\sqrt{\frac{3}{4}n^2 + \frac{5}{18}s^2} - n$ for brick walls.—If n be taken $= \frac{1}{5}$ or .2; and the angle TBC $= 45°$, so that s^2 be $= .5$; then $x =$, $136 \times a$ for stone walls, and, $1211 \times a$, nearly, for brick walls, both considerably less than Mr. MULLER's computations, if w should be found what is here supposed.

Fig. 3.

LET A′B′C′D′ be a wall of the same dimensions figure 3, with the addition of a counterfort B′C′F′E, which is continued to the bottom of the foundation G H. Then, since the breadth of a counterfort is $\frac{1}{4}$ of the distance between each other, the weight applied at any point S′, sufficient to break the counterfort in the line B′E′, will be as $\frac{B'E \times A'B' + \frac{1}{2}B'E'}{4B'S'}$, which being added to the former quantity for breaking the wall A′B′C′D′ in the line A′B′, gives w as $\frac{\frac{1}{2}A'B^2}{B'S'} + \frac{BE' \times \frac{1}{2}A'B' + \frac{1}{2}L'L'}{4BS} = b$. Hence the weight sufficient to break a wall of any other dimensions, will be $= \frac{2AB^2 + \frac{1}{4}BC \times AB + \frac{1}{32}BC^2}{4BC} \times \frac{w}{b}$ and the momentum $= \frac{2AB^2 + \frac{1}{4}BC \times AB + \frac{1}{32}BC^2}{4BC} \times \frac{w}{b}$, which if BE be $= \frac{1}{4}$ BC, will be $= \frac{2n^2a^2w + 4naawx^2 + \frac{1}{4}na^2w + \frac{1}{4}awx + \frac{1}{2}aw}{4b}$ which must therefore be added to the momentum of the

wall and counterfort given by Mr. MULLER in his 3d prob: from whence arifes $\overline{4b+2w}\times x^2+\overline{4b+2w}\times 2n\overline{+\frac{1}{2}b+\frac{1}{4}w}\times x+\overline{\frac{8}{3}bn^2+2wn^2}\times a^2+\overline{\frac{1}{2}b+\frac{1}{4}w}\times na^2+\overline{\frac{1}{16}b+\frac{1}{32}w}\times a^2=\frac{32}{27}ba^2s^2$, which tranfpofed and divided by $\overline{4b+2w}$, gives $x^2+\overline{2na+\frac{1}{8}a}\times x=a^2\times\frac{\frac{32}{27}s^2b-\frac{8}{3}bn^2-2wn^2}{4b+2w}-\frac{1}{8}n-\frac{1}{16}$; and being reduced, gives $x=a\sqrt{n^2+\frac{\frac{32}{27}s^2b-\overline{\frac{8}{3}b+2w}|\times n^2}{4b+2w}-\frac{3}{256}}-n+\frac{1}{16}$) which is a general equation for ftone walls; and by comparing the fpecific gravities, as in the former cafe, then $x=a\sqrt{n^2\times\frac{\frac{40}{27}s^2b-\overline{\frac{8}{3}b+2w}|\times n^2}{4b+2w}-\frac{3}{336}}-n+\frac{1}{16}$, a general equation for brick walls.

Now in order to obtain the value of w, let Q reprefent the mafs of the wall and counterfort together, fufpended to a line paffing through their common center of gravity, and which will cut the line AE, we will fuppofe, in the point H. Then, from the principles of mechanics, if c and d be the points in the line A E, where lines paffing through the refpective centers of gravity of the two maffes A B C D, and B C F E, will interfect that line, we have Q: $\frac{1}{2}$ A B + $\frac{1}{2}$ B E $(=cd)$: : B E + $\frac{1}{4}$ B C (*as* the mafs B C F E): $\frac{\overline{\frac{1}{2}AB+\frac{1}{2}BE}\times BE\times\frac{1}{4}BC}{Q}=\frac{\overline{\frac{1}{2}+\frac{3}{8}}\times\frac{9}{16}}{1\times 3+\frac{9}{16}}=\frac{21}{152}=cH$. Whence A H $=\frac{21}{152}+\frac{1}{2}=\frac{97}{152}$. Then again, by the laws of mechanics; as $\frac{49}{16}(=AB+\frac{1}{4}BE+BS):\frac{97}{152}(=AH)::\frac{57}{16}(=Q):\frac{5528}{7448}=W$; —and confequently, $w=\frac{1843}{7448}=,234$ nearly. Now $b=\frac{2AB^2+\frac{1}{4}BC\times AB+\frac{1}{32}BC^2}{4BS}=\frac{97}{256}=,379$, nearly, and if $n=\frac{1}{5}$, and the angle CBF $=45°$, fo that $S^2=,5$;—and their different values fubftituted in the general expreffions above, we fhall get $x=,0815\times a$ nearly, for ftone walls, and $x=1155\times a$ nearly, for brick walls.

SCHOLIUM.

IN eftimating the value of w in thefe computations, I have fuppofed it to be $\frac{1}{3}$ the weight (W) which would fuftain the wall by which the experiment is made, *in equilibrio:* this I fufpect is below its value; particularly if the mafonry be old. In afcertaining the value of w I would undoubtedly make various experiments with maffes of mafonry from one to four or five years ftanding, fo as to compute for works whofe walls may probably remain for fo many years before they be clofed up with earth. If the mortar be very good, the cohefion of a wall well built and feafoned, muft become a very important object in the conftruction of large fortified places;—for by that the expence, as well as time and labour in the building, muft be confiderably reduced. To ufe no more materials than what are neceffary fhould be a maxim in fortification, but then to determine the exact dimenfions of any particular work, fo that it may anfwer the purpofe intended, and yet have no ufelefs materials about it, muft require a mathematical inveftigation before any rule can be obtained for proceeding upon folid and infallible principles. Engineers, to whom the direction of the moft important works of a nation is intrufted, ought to be capable of determining what is precifely neceffary to be done in all cafes, that no ufelefs expence may be incurred, but inftead of having recourfe to fcience, men in general, depend upon what they call experience; forgetting that in practice alone, there are no means for drawing general conclufions; but that we obtain, from *experiment*, the requifite *data*, to reafon and generalife upon, and by fuch materials we are enabled to build a theory, to which practice muft be ever fubordinate and conformable. Should any circumftance occur in the courfe of practice that has not been confidered in that theory, fuch circumftance fhould be then taken into confideration; but let no conclufions be drawn from thence, but what are correct and fcientific. For to attempt to reafon without principles; to fubftitute hypothefis for facts,

and fancy in place of philoſophy, would be ſubjecting ourſelves to innumerable errors. Hence it is, that in the conſtruction of various compound machines, ſuch frequent blunders are committed; for inſtance, where it is required to find the juſt proportion and dimenſion of the different parts of a machine, for raiſing water, &c. and the ratio of the weight to the power, ſo that the moſt work might be done in the leaſt time poſſible, dimenſions are generally taken from rules which apply only to a ſtate of equilibrium, without having any recourſe to velocity. And hence alſo, the miſtaken practice of loading an arch, of whatever figure it may be, with the ſame maſs of maſonry, without knowing the principle of equilibration, whereby the extrado of any arch is ſo conſtructed, that every part of the arch ſhall ſuſtain a preſſure, juſt ſufficient to retain it in its perfect form. But to enumerate the inſtances where theory is requiſite, would be endleſs, becauſe it would be difficult to mention one ſingle caſe where it was not neceſſary. The great object to be attended to in founding a correct theory is, to include in the data every circumſtance that *can* occur; and it is from this neglect, that in mixed mathematics, authors have ſometimes differed in their reſults, though their mode of reaſoning has been ſtrictly mathematical. It is to be regretted that men of abilities have not paid more attention to experimental knowledge, where they have been in ſearch of data for applying abſtract reaſoning to the rude operations of matter. Mr. VINCE, one of the firſt mathematicians of the preſent age, is now opening a new path to the moſt valuable diſcoveries, by the beſt conducted experiments that have yet been communicated to the world, reſpecting friction, and the reſiſtance of fluids. By the former he has diſcovered very different laws to what have been followed hitherto, and which, when conſidered and applied to compound machines, whoſe effects after being put in motion are inveſtigated, will tend greatly to compleat the ſcience of mechanics. His experiments laſt mentioned

tioned lead to improve a ſubject the moſt abſtruſe and difficult in the whole ſcience of phyſics. Many of our firſt mathematicians, ſince the immortal NEWTON ſhewed the way, have inveſtigated, with the greateſt perſpicuity and elegance, a great variety of theorems concerning the reſiſtance of bodies moving in diflus; but for want of knowing the law of reſiſtance, their concluſions have differed very conſiderably from thoſe experiments that were made to aſcertain their truth. Doctor HUTTON after making many experiments at *Woolwich*, in the year 1786, in order to prove the reſults of ſeveral intereſting problems which he has given in his ſelect exerciſes, where he allows the law of reſiſtance to be in the duplicate ratio of the velocity, obſerves, "upon the whole, we find that the reſiſtance of the air, as determined by our experiments, differs very widely, both in reſpect to the quantity of it on all figures, and in reſpect to the proportions of it on oblique ſurfaces, from the ſame as determined by the preceding theory, which is the ſame as that of SIR ISAAC NEWTON, and moſt modern philoſophers." And further, he ſays, "we conclude therefore, that all the theories of the reſiſtance of the air hitherto given are very erroneous. And I have only laid down the preceding one, till further experiments on this important ſubject ſhall enable us to deduce from them another, that ſhall be more conſonant to the true phenomena of nature."

WHETHER I have noticed every thing that ought to be taken into conſideration, in deſcribing how the experiment aforeſaid ought to be made, will, perhaps with ſome, be a matter of doubt: but this I may venture to aver, that, if I have not, further diſcoveries on the ſubject will tend to a greater reduction in the dimenſions of the wall; and as this enquiry has contributed to that end, I ſhall remain ſatisfied with the correctneſs of the theory here eſtabliſhed, till more data can be obtained.

TO C. E. CARRINGTON, ESQ.

SECRETARY TO THE ASIATICK SOCIETY.

SIR,

THE nature and effects of the poiſon of ſerpents having lately attracted the attention of Mr. WILLIAM BOAG, one of the ſurgeons at this preſidency, I have the pleaſure to ſubmit to the conſideration of the Society, the remarks drawn up by that gentleman, on a ſubject, hitherto involved in much obſcurity; and which the theory now offered, may perhaps tend to throw new and uſeful lights upon.

HAVING, ſince my leaving *Bengal*, been viſited at this place by PURANA POORI, the *Sunyaſſy*, of whoſe former travels ſome account was given in my letter to Mr. Secretary MORRIS, of the 23d of *September* 1795; and having, in conſequence, found him to vary in a few reſpects, from the tenor of his former narrative, ſo as to affect its accuracy, in as far as regards the exact ſituation of *Cailaſa Kungri*; I think it incumbent on me (the more eſpecially from obſerving in the newspapers that his former account makes part of the *Society*'s laſt publication) to appriſe them, that he now declares, he clearly underſtands the hill or pinnacle in queſtion to be ſituated only about two miles to the ſouthward of *Maunſeerweer* lake; as well as that the Ganges flows viſibly from what he now ſays he has heard to be its ſpring-head in that hill, to the diſtance of between ſeven and eight miles; and thence works itſelf a ſubterraneous paſſage, until it again emerges in the country of *Kedar Nauth*, at the place called *Gungowtry*.

WITHOUT attempting ſatisfactorily to account for this difference in BRAUN POORY's firſt and latter accounts, it may be deemed of ſufficient importance to call for this acknowledgment of it, in view to the celebrity of the geographical poſition to which it relates.

I have the honour to remain, &c. &c.

Bombay, the 4th April, 1798. JON. DUNCAN.

V.

ON THE POISON OF SERPENTS.

By W. Boag, Esq.

SECTION I.

I PROPOSE, in this paper, to make ſome enquiry into the nature of the poiſon of the ſerpent, and to aſcertain, as far as I am able, the moſt ſucceſsful method of removing the diſeaſe it produces.

Whether the principles I ſhall endeavour to eſtabliſh will be admitted as ſatisfactory, or ſanctioned by future, and more extenſive experience, I cannot pretend to determine; but the diſcuſſion cannot be altogether deſtitute of utility in this climate, where ſerpents are much more numerous, and much more dangerous than in *Europe*.

I shall begin by obſerving that, by far the greateſt number of ſerpents are not venomous. In the 13th edition of the Syſtema Naturæ, publiſhed by Profeſſor Gmelin, we find a liſt of two hundred and nineteen different kinds of ſnakes; and Linnæus informs us, that about one in ten only are poiſonous; we alſo know it to be true, that many ſnakes which poſſeſs a poiſonous quality, are not mortal to man, though they may be deſtructive to ſmaller animals.

It would be a deſirable thing to be able to aſcertain, from the appearance of a ſnake, whether it be venomous or not, but theſe animals ſo nearly reſemble one

one another, that it is impoffible, without great experience, to diftinguifh them. The fkin on the belly and tail of ferpents, is compofed of fcales, which vary, in number and arrangement, in different ferpents. Upon this circumftance, LINNÆUS has founded his divifion of the ferpent tribe into fix diftinct genera. But this divifion, however ufeful it may be to the naturalift, is of little ufe to the phyfician, who is defirous of diftinguifhing the harmlefs from the venomous ferpent: the colour, which is moft commonly attended to, is a very fallacious mark, for it commonly changes with age: a ferpent with a large head, is generally fufpected to be venomous; but the mark which is chiefly to be depended on, is the large canine teeth, or fangs, fixed in the upper jaw, which are commonly two in number, but fometimes more. Thefe teeth are covered with a membranous fheath, and are crooked, moveable, and hollow, to give paffage to the venom, which they receive from a fmall refervoir, that runs along the palate of the mouth, and paffes through the body of each fang. This refervoir contains but a very fmall quantity of venom, which is forced out of it when the animal attempts to bite, by a ftrong mufcle fixed to the upper jaw, and that covers it nearly through the whole of its length. This is the means of defence given to ferpents; it has been well obferved by LINNÆUS, that if nature has thrown them naked on the ground, deftitute of limbs, and expofed to every injury, fhe has in return, fupplied them with a deadly poifon, the moft terrible of all weapons, and which has made them, from the earlieft ages, to be regarded as objects of horror, or of religious veneration, by the human race.

SECTION II.

THE fymptoms which arife from the bite of a ferpent, are commonly pain, fwelling and rednefs in the part bitten; great faintnefs, with ficknefs at ftomach, and fometimes vomiting, fucceed; the breathing becomes

fhort

ſhort and laborious, the pulſe low, quick, and interrupted: the wound, which was at firſt red, becomes livid, black and gangrenous; the ſkin of the wounded limb, and ſometimes of the whole body, takes a yellow hue; cold ſweats and convulſions come on, and the patient ſinks, ſometimes in a few hours, but commonly at the end of two, three, or four days.

THIS is the uſual progreſs when the diſeaſe terminates fatally, but happily the patient will moſt commonly recover, a reflection which ſhould moderate the fears of thoſe who happen to be bitten by ſnakes, and which at any rate ſhould, as much as poſſible, be reſiſted, as the depreſſing paſſion of fear will, in all caſes, aſſiſt the operation of the poiſon.

WE read in authors that the bite of ſome ſnakes produces ſymptoms peculiar to themſelves*. The aſp is ſaid to produce an univerſal torper and lethargy without pain: for this reaſon we are told, CLEOPATRA, the celebrated queen of *Egypt*, preferred a death inflicted by the bite of this animal to any other. This is a fact concerning which hiſtorians may differ, but it appears certain, from ſome caſes related by Captain GOWDIE, in Dr. RUSSEL's late ſplendid publication, and by other writers, that the bite of ſerpents will, in this manner, ſometimes produce death. LUCAN, in his pharſalia, mentions a variety of ſerpents that infeſted the *Roman* army in its march over the *Lybian* deſart, and he diſtinguiſhes them by the various ſymptoms they produced. But the dreadful catalogue given by LUCAN, ſhould rather be conſidered as poetical embelliſhments, than hiſtorical facts; and whatever truth may be in this variety of ſymptoms, it is infinitely of more importance to know, that the nature

* Heritinandel, malabarenſium coluber, ictu corrumpit carnes totius corporis humani, ut putreſcant, decidant, et poſt mille tormenta, moriatur vulneratus. Parata tamen huic malo medcla eſt in Antideſmæ decocto aquoſo, copioſius hauſto,—Amenitat: Academ: Vol. 1, p. iii.

of

of the venom is the ſame in all of them, and conſequently to be removed by the ſame means: this opinion appears to be juſt and natural, though it may not admit of any direct proof. It has uniformly been obſerved, that even the ſame ſerpent poſſeſſes very different degrees of power in its bite, according to the ſeaſon of the year, and other circumſtances: this is beautifully touched upon by VIRGIL, when ſpeaking of a ſerpent that was, in his time, common in *Italy*.

> Poſtquam exhauſta palus, terræque ardore dehiſcunt,
> Exilit in ſiccum, et flammantia lumina torquens
> Sævit agris, aſperque ſiti, atque exterritus æſtu.
> Ne mihi tum molles ſub dio carpere ſomnos,
> Neu dorſo nemoris libeat jacuiſſe per herbas:
> Cum poſitis novus exuviis, nitiduſque juventa
> Volvitur, aut catulos tectis, aut ova relinquens
> Arduus ad ſolem, et linguis micat ore triſulcis.
>
> VIRG. GEORG. lib. 3d.

SECTION III.

WE are now to enquire in what manner the venom produces ſuch fatal effects upon the human body. This it will be admitted is a very intereſting queſtion, and has given riſe to a great variety of opinions, but after all, no ſubject ſeems to be leſs underſtood. Ancient writers have offered a variety of crude conjectures, which have deſervedly been forgotten; they, however, made one important obſervation, "that the poiſon produced its effects in conſequence of a wound, and through the medium of the blood." Upon this view of the diſeaſe, the whole of their practice was founded; it was the object of all their applications, as expreſſed by CELSUS, "quo plus vitiati jam ſanguinis extrahatur." This opinion, however, did not continue to be maintained: later phyſicians, ſupported by

by the respectable authority of Dr. MEAD, observing how quickly death sometimes follows the bites of serpents, concluded that the venom could act through the medium of the nerves only. This is one of those vague conjectures which has served, at one time or another, to obstruct the progress of every science, and which owes its reputation to a sort of readiness in explaining every thing, because it can explain nothing in an intelligible manner. The celebrated *Italian* naturalist, FONTANA, has freed us from this difficulty, by demonstrating, from a great variety of experiments on different animals, that the venom of the viper is perfectly innocent when applied to the nerves only; that it produces in them no sensible change, and that they are incapable of conveying the poison to the animal. On the other hand, he has shewn in a very distinct manner, that it acts immediately upon the blood, that through the medium of this fluid, it destroys the irritability of the muscular fibres, and produces death. Neither is it difficult, upon this view of the subject, to understand how the poison may sometimes produce very sudden death; for if this active matter happen to be thrown immediately into a large vein running along the surface of the body, it will more readily be carried to the vital parts, and may render the use of the most powerful remedies ineffectual.

THE ground being so far cleared, the question now occurs, what is the peculiar quality in the venom, which enables it to produce such direful effects? Till we can answer this question in a satisfactory manner, it is evident, that the practice in this disease must be guided by chance, and we can entertain no rational hope of correcting the poison. It is not many years since this subject seemed to be covered with an impenetrable veil, and FONTANA, among all his reasonings upon the poison of the viper, does not once attempt to remove it. It is therefore an agreeable reflection, that the rapid progress which chemistry has made of late years,

years, enables us to enter upon this part of the ſubject with ſome degree of confidence, and if it ſhould be thought I have failed in determining this queſtion with ſufficient preciſion, the view here taken of the ſubject may not be altogether deſtitute of uſe. It is an opinion at leaſt as old as PLINY *, that the blood is a living fluid, but it was reſerved for the late celebrated phyſiologiſt, Mr. JOHN HUNTER, to place this opinion among the number of thoſe truths that can no longer be diſputed. How the life of this fluid begins, and in what the living principle itſelf conſiſts, are matters concerning which we ſhall probably remain for ever ignorant; but it has been eſtabliſhed beyond all controverſy, that the life of the blood immediately depends upon the action of the atmoſpheric air, to which it is expoſed in its paſſage through the lungs. The human heart, and in general the heart of all animals with warm blood, has two cavities or ventricles, and the blood, before it is returned to the right ventricle of the heart, has performed two circles, a leſſer between the heart and the lungs, and a larger between the heart and the reſt of the body. While the blood paſſes through the lungs, it undergoes a very remarkable change in its colour, and other properties: a certain portion of the atmoſpheric air is attracted and abſorbed, while the remainder carries off by expiration, that matter in the blood, which is either uſeleſs or noxious to the body. The atmoſphere we live in, it is now well known, is a compound fluid, one fourth part of which is called pure or oxygen air, and the remainder, and larger portion, noxious or azotic air; but it is the former part only, which is attracted by the blood as it paſſes through the lungs, and contributes to the ſupport of animal life, from whence alſo, *the red colour of the blood, and the heat of animals is derived.* Independently of the direct proofs of theſe

* In treating on the blood, he obſerves—Magna et in eo vitalitatis portio. Emiſſus ſpiritum ſecum trahit, tamen tactum non ſentit.
PLIN. Secund. Nat. Hiſt. lib. xi. cap. 38.

facts

facts afforded by chemical experiments, they admit of further illustration from serpents themselves. The heart of serpents, and all other cold blooded animals, has but one cavity, and the blood performs but one circuit round the body, so that a small portion only passes through the lungs: hence little of their blood is exposed to the action of the atmosphere, it is therefore but little loaded with oxygen, it is not of so high a colour, and the heat of their bodies is less.

These fundamental truths have already given a new appearance to the theory and practice of medicine, and they now lead me to conjecture that the poison of serpents acts upon the blood, by attracting the oxygen, which it receives from the atmosphere in its passage through the lungs, and upon which its vitality depends.

In support of this opinion, I would adduce the following arguments:

1. Man, and other warm blooded animals, exposed to an atmosphere deprived of oxygen, quickly expire. The poison of a serpent when introduced into the blood, also causes death, but carried into circulation by a wound, and in very small quantity, its operation is comparatively slow and gradual.

2. The appearances on dissection in both cases, are very similar. The blood becomes of a darker hue, and coagulates about the heart and larger vessels; the irritability of the fibres are nearly to the same degree destroyed, and the body has a strong tendency, in both instances, to putrescency.

3. Doctor Mead mixed the venom of the viper, and healthy blood together out of the body, and he did not perceive that it produced any change in its appearance: this arose from his mixing a small quantity of the

the venom with a large quantity of the blood : but if two or three drops of venom be mixed with forty, or fifty drops of blood, it immediately loſes its vermillion colour, becomes black, and incapable of coagulation.

4. It is a very remarkable circumſtance, that the poiſon of the ſerpent has moſt power over thoſe animals, whoſe blood is the warmeſt, and the action of whoſe heart is the moſt lively: while on the contrary, it is not a poiſon to the ſerpent itſelf, nor in general to cold blooded animals. The reaſon appears to be this: cold blooded animals do not require a large quantity of oxygen to preſerve them in health; this is evident from the conformation of their heart, and reſpiratory organs, as already mentioned. It does not however follow, that no quantity of the venom would deſtroy them, for it is alſo evident from their poſſeſſing reſpiratory organs of any kind, that a certain quantity of oxygen is abſolutely neceſſary, and hence we know that ſome of them, ſuch as frogs, may be killed by the venom, though it always produces its effects more ſlowly upon them, than upon animals with warm blood.

Having thus endeavoured to aſcertain the method in which the poiſon operates, it may now be aſked, what ſubſtance can it be, that ſo ſtrongly attracts the oxygen of the blood? The venom is inodorous and inſipid, contrary to the opinion of Doctor Mead, it is neither ſharp nor fiery, for it has ſcarcely any perceptible taſte; it has the appearance, and ſenſible properties of an animal mucus, but this mucus is evidently a vehicle to ſome very active matter: on this ſubject it would not be difficult to conjecture, but as in the preſent ſtate of our knowledge, no conjecture we could offer could be eſtabliſhed upon any ſatisfactory grounds, we ſhall leave this part of the ſubject for future inveſtigation.

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SECTION IV.

We now proceed to enquire into the moſt ſucceſsful method of curing the diſeaſe which the poiſon produces; and this part of the ſubject will, we hope, afford an additional proof, that the view here taken of the operation of the poiſon, is moſt probably a juſt one.

It would be an endleſs and unprofitable taſk to enumerate all the remedies which have been impoſed upon the credulity of mankind, as ſpecifics againſt the poiſon of ſerpents; they have been obtained from all the kingdoms of nature, and there is no country, however rude and barbarous, where the inhabitants have not boaſted of ſome ſpecific peculiar to themſelves. The ancient phyſicians highly extolled various preparations of the viper itſelf as a remedy in this diſeaſe: it would have been a fortunate circumſtance, if the ſame animal that produced the poiſon, ſhould alſo have afforded an antidote to deſtroy it. Human ſaliva, as we are informed by Seneca, and the elder Pliny, was believed to be a powerful remedy for the bite of a viper. The *Pſylli* and *Marſi* in ancient times, pretended to poſſeſs ſome charm in their perſons deſtructive to the poiſon of ſerpents; and we are told by Mr. Bruce, that a ſet of men ſtill exiſt in *Egypt*, who will ſuffer themſelves to be bitten, and with impunity, by the moſt venomous ſerpents in that country, whoſe bite would be to others, certain and ſpeedy death. A great variety of vegetables have been celebrated in different countries for the bite of the ſerpent, and none more highly than the root of the *Ophirrhiza Mungos*, Lin: concerning which Kæmpfer relates very ſurpriſing effects. It is chiefly uſed for the bite of the *Cobra de Capello*, (*Coluber Naja*, Lin:) by the natives of this country, and it would appear that they place great confidence in it. * In *America* alſo, a variety of ſnake roots

* A particular deſcription of this plant will be found in the ſecond volume of the *Amenitat: Academicæ*. In the 4th volume of the *Aſiatick* Reſearches, Sir William Jones deſcribes a plant under the name of *Chandraca*, which, from the quality aſcribed to it, by the *Bengal* peaſants,

roots have been discovered, and other vegetable remedies, which seem in general to unite the two qualities of warmth and bitterness, and it is very probable that by rousing the vital functions, they may be of some use in assisting nature, to resist the deadening operation of the poison.

THE volatile alkali is the remedy most commonly employed by physicians, both in this country and in *Europe*; but the belief which formerly prevailed, that it possessed some specific power, which corrected the poison, seems to be now very generally relinquished * ; and it is now acknowledged to have no other action than that ascribed to it by Mr. WILLIAMS, of stimulating the heart and vascular system to a more vigorous exertion.

THE calces, or as they are more properly called, the oxyds of some metals, as arsenic, mercury, and silver, have been made use of, the efficacy of which as remedies in this disease, merit a more attentive consideration.

ARSENIC has long been employed by the natives of this country, since it forms the principal ingredient in what is called the *Tanjore* pill. The little experience collected by *Europeans*, does not enable us to form any very exact judgment respecting it. The remedy itself produces very violent effects; and if used with any freedom, might occasion death. It is therefore difficult to distinguish the effects of the remedy from the symptoms

fants, of curing animals bitten by snakes, he conjectures, may be the same. There seems to be much obscurity among authors in their accounts of this plant, which sufficiently justifies the conjecture of Sir WILLIAM JONES. It is named by different writers, *Rametul*, *Naghawalli*, *Ekawerya*, *Caju-ular*. I took some pains to enquire, among the natives, for this root. A specimen was brought me, by a snake doctor, which corresponded to the description, given of it by KÆMPFER. He named it *Naghawalli*: he said when a person was bit by the *Cobra de Capello*, the piece of it was rubbed upon the eyelids, lips, and tongue, that it produced sickness and vomiting, but had no effect upon those who were not bitten. I chewed some of it, it was bitter and aromatic.

* *Asiatick* Researches, Vol. II.

of

of the diſeaſe: it ſhould probably be employed in deſperate caſes only, and where no other powerful remedy can be procured. For though it may be very well adapted to counteract the poiſon, yet I think it neither ſo ſafe, nor ſo efficacious, as other remedies which are now to be mentioned.

THE preparations of mercury, ſo far as I can judge from the limited opportunities I have of collecting information from books, ſeem alſo to have been but little uſed in this diſeaſe, although mercury is a remedy, from which I think much benefit might be expected. I find in the Syſtema Naturæ the following obſervation on the *Coluber Rhedi:* LIN. "Moſu celerrime lethalis, niſi mercurii ſolutione gummoſa, et gentianæ decocto ſuccurritur ægro."—If mercury ſhould ever come into uſe in this diſeaſe, it ſhould certainly be employed in a more effectual manner than is commonly practiſed; and if we are right in aſſerting that the nature of the poiſon is the ſame in all ſerpents, the obſervation of LINNÆUS reſpecting the *Coluber Rhedi:* will, with ſome limitation, apply to them all.

WE are indebted to FONTANA for any knowledge we poſſeſs on the uſe of the lunar cauſtic, which is a preparation of ſilver in the nitric acid; and conſidering the length of time that has elapſed ſince his publication, and the advantages reſulting from its uſe, it is wonderful it has not excited more general attention.

I SHALL compriſe the reſult of FONTANA's experiments on this ſubſtance in a few words. He firſt mixed the venom with the lunar cauſtic, applied this mixture to a wound, and found that the venom was rendered entirely innocent, while the corroding power of the cauſtic was diminiſhed. He next wounded a variety of animals, with venomous teeth, ſcarified the wounds, and waſhed them with a ſolution of lunar cauſtic in water: by this means, the life of the greateſt

 number

number of the animals was ſaved, though they were ſuch as he knew to be moſt eaſily killed by the poiſon, and the death of others was retarded. He alſo tried a weak ſolution of the ſame remedy internally with remarkable ſucceſs, and upon the whole he congratulates himſelf in ſeeing his labours at length rewarded by the diſcovery of a true ſpecific remedy for the bite of the ſerpent.

Fontana was led to the uſe of this remedy by no previous theory, for neither before, nor after his diſcovery, does he attempt to account for its effects, and the infinite variety of his experiments, as well as the fidelity and accuracy with which he relates them, entitle him to our confidence and praiſe.

I am now to explain in what manner, the ſucceſsful uſe of theſe ſubſtances ſupports the principles we have been endeavouring to eſtabliſh: and here again I am under the neceſſity of aſſuming ſome facts, which are eſtabliſhed and indiſputable.

1. Oxygen enters into the compoſition of all acids, and is the principle, as its name imports, upon which their acidity depends.

2. Metals are united with oxygen under various circumſtances, but chiefly in two ways: the firſt is by burning them in an open fire, or to ſpeak more correctly, by the contact of heat and air, when they are converted into metallic oxyds: the ſecond, by the decompoſition of acids, when they form compound ſalts.

3. Oxygen is attracted by different metals with different degrees of force, thoſe which attract it with the leaſt force, are the perfect metals, as platina, gold, ſilver, hence they cannot be converted into an oxyd by expoſure to heat and air, except at very high temperature,

rature. After them comes mercury, and after it, the imperfect and semi-metals: these last, of which arsenic is one, for the most part attract oxygen strongly, and are generally found united with it under various forms in the bowels of the earth.*

Oxygen, we have already observed, is a principle which enters into the composition of the blood, and performs a very important part in the animal œconomy. It must also be evident that the blood may be more or less loaded with this principle, and that disease may be produced, either by too great, or by too small a quantity being present in the circulating mass. We have already said that the disease produced by the bite of a serpent, arises from the subtraction of oxygen from the blood; the indication of cure must therefore be, to supply this oxygen, which we suppose to be withdrawn. The most obvious method of accomplishing this will be to employ such substances as are known to contain oxygen in the greatest abundance, and to part with it with the greatest facility. This is precisely the character of the lunar caustic, which is made by dissolving silver in the nitric acid, and afterwards evaporating and cristallising the solution. The composition of the nitric acid is also accurately ascertained, it differs from the common nitrous acid of the shops, by containing a greater quantity of oxygen, and in a singularly loose form; so that if our reasoning upon the poison of the serpent be in any degree correct, no medicine would appear to be better calculated than this, to obviate its effects.

The application of the foregoing principles, will explain the probable efficacy of the different metallic preparations we have just spoken of, which will be

* I am very sensible that the terms perfect, imperfect, and semi-metals, are improper: for all metals are equally perfect of their kind, but I have complied with the common terms, that I might the more readily be understood.

connected with the order of their attraction for oxygen, and the quantity they contain; it will alſo lead us further to improve and perfect the practice: for whenever a perſon is bitten by a ſerpent, and danger is apprehended, every means ſhould be employed, which human ingenuity has diſcovered, of ſpeedily oxygenating the ſyſtem.

Whether the ſame method might not be applicable to the diſeaſes ariſing from ſome other animal poiſons, is a ſubject which remains for experience to determine. There is great reaſon to believe, that the venereal poiſon is removed by this method*, and it is not improbable, that the ſame practice might be ſucceſsful in the *Rabies Canina*. This diſeaſe, however, very ſeldom makes its appearance in this part of *India*, although it is mentioned, by the natives, as not a very uncommon diſeaſe at *Poonah*. I lately attended in this place, with Mr. Scott, a man who had been bit by a dog, and who was ſuppoſed to have ſome ſymptoms of this diſeaſe: we ſuſpected at firſt, and were ſoon convinced, that the whole was imaginary, for the man, without any aſſiſtance, quickly recovered: and this is the only inſtance I have had an opportunity of ſeeing in *India*.

I shall conclude this paper, by giving a connected view, of what appears to be the moſt adviſeable method, of treating the bite of a ſerpent, which is apprehended to be venomous. This obviouſly divides itſelf into the external treatment of the wound, and the internal uſe of medicines, to counteract the action of the poiſon in the blood.

The *Pſylli*, as already mentioned, poſſeſſed a high reputation for curing the bites of ſerpents, but their whole method, when ſtripped of myſtery and fable, conſiſted

* I refer here to a paper publiſhed by Mr. Scott, on the nitric acid.

consisted in sucking the wound. This practice is recommended in strong terms by CELSUS, who observes, that it is not only harmless to the person who sucks the wound, but will save the life of the person wounded: "ergo quisquis id vulnus exsuxerit, et ipse tutus erit, et tutum hominem præstabit." Though I would not be so sanguine in the success of this practice, yet as giving one chance to escape, it ought not to be omitted. A ligature should, as soon as possible, be tied above the part bitten, so as to impede, but not entirely to stop the circulation of the blood, for the bite of a serpent is for the most part superficial, and the poison is carried into circulation by the smaller vessels on the surface. The wound should next be scarified, and washed with a solution of the lunar caustic in water: I would prefer, for this purpose, a weak solution, because it may be used more freely, and frequently repeated. The same medicine should also be given internally, and repeated, at intervals, as circumstances might point out. The foregoing reasoning upon this medicine, induced me, some months ago, to make trial of it internally, in a different disease; this, therefore, is not the place to state the result of these trials; but it is proper to mention that I know, from repeated experience, it may be taken, two or three times in the day, in the quantity of half a grain dissolved in two ounces of pure water *, and its use persisted in, for several days, with great safety. The principal effects it produces, are a heat in the stomach and breast, and, after a time, a tenderness in the gums, and a disposition to bleed, but without that swelling and pain attending the use of the oxyds of mercury.

To these means might be added (especially if the symptoms, that may have come on, are not materially relieved) a warm bath acidulated with the nitric acid.

* THE water should be distilled, or at least it should be rain water, otherwise the lunar caustic will be in part decomposed, which will be evident, by a white cloud forming in the solution.

In this bath, which ſhould be made ſufficiently ſtrong to produce a very ſenſible irritation on the ſkin, the wounded limb, and a great part of the body, might be placed for half an hour, and repeated as circumſtances might direct. We are informed by FONTANA, that he found a bath of very warm water exceedingly uſeful; he ſays that it leſſened the pain, abated the inflammation, and the part bitten did not become ſo livid and changed. I apprehend that the moderate addition of the nitric acid to this bath, would be a great improvement: it has been made uſe of ſucceſsfully in this place, by Mr. SCOTT, in ſome caſes of *Lues Venerea*, and I have uſed it in ſome bad ſores, in this country, with great effect.

THERE are a variety of other methods of oxygenating the blood, but all of them may not be ſo well adapted to remove the diſeaſe, nor of ſuch eaſy application and attainment. I ſhould hope, if the foregoing plan be diligently purſued, it would, in almoſt every inſtance, be ſufficient to effect a cure. The blood may be oxygenated through the medium of the lungs, either by expoſing the patient to an atmoſphere loaded with nitric vapours, in the manner recommended by Dr. CHARMICHAEL SMYTH in contagious diſeaſes *, or a more highly oxygenated atmoſphere might be breathed by means of a pneumatic apparatus, adapted for the purpoſe, as recommended by Dr. BEDDOES.

BUT as this paper has already extended to a greater length than I at firſt intended, I content myſelf with barely mentioning theſe methods, and muſt refer to the authors themſelves for a particular account of the practice here alluded to.

* IT may be proper to remark, that at the time Dr. C. SMYTH made the experiments above alluded to, he was not ſufficiently acquainted with the materials he was uſing, to draw the proper concluſions from them; this, however, cannot affect the utility of the practice he recommends.

I HOPE

I HOPE I have ſaid enough, to ſhew that the principles I have attempted to eſtabliſh are at leaſt ſupported by probability, that the method here propoſed has already been ſanctioned by a more certain experience than any other, and that it affords the moſt likely means of counteracting the deadly poiſon of the ſerpent tribe.

IT is, however, to experience alone, we muſt truſt, for the ultimate deciſion upon this ſubject; and, to whatever concluſion this may lead us, I ſhall moſt willingly follow; profeſſing myſelf much more anxious for the diſcovery of truth, than for the ſupport of any of the opinions ſtated in this paper. I ſhall think myſelf ſufficiently happy, if this eſſay ſhould in any way tend to elucidate a ſubject, as important as it is obſcure.

SUPPLEMENT TO THE FOREGOING PAPER, ON THE POISON OF SERPENTS.

HAVING at length ſucceeded in procuring a ſnake with the venomous teeth and poiſon bag entire, but which are commonly extracted in thoſe ſerpents which the natives carry about with them, I reſolved to make ſome experiments with it. The ſnake I had procured was a large *Cobra de Capello* (*Coluber Naja*, LIN.) and which is generally repreſented to be the moſt venomous of all ſerpents.

EXPERIMENT I.

I WAS, in the firſt place, deſirous of aſcertaining the power of the venom: for this purpoſe, the ſnake was made to bite a young dog in the hind leg, and for which no medicine, either internal or external, was made uſe of. The dog, upon being bit, howled violently for a few minutes; the wounded limb ſoon became paralytic; in ten minutes the dog lay ſenſeleſs and convulſed; in thirteen minutes he was dead.

EXPERIMENT II.

A DOG, of a ſmaller ſize, and younger, was now bitten in the hind leg, when he was inſtantly plunged into a warm nitric bath, previouſly prepared for the purpoſe: as ſoon as poſſible after he was in the bath, the wound was ſlightly ſcarified, and a weak ſolution of lunar cauſtic in water was poured down his throat: but the ſymptoms made the ſame progreſs as in the firſt experiment, and the dog died in the ſame time.

UPON opening theſe two dogs, about half an hour after death, the blood in the heart, and in the larger veſſels,

veſſels, was of a dark colour, in a fluid ſtate, and did not coagulate on expoſure to the atmoſphere.

EXPERIMENT III.

After the interval of one day, the ſame ſnake was again brought, and made to bite a young puppy in the hind leg, but above the part to be bitten, I had previouſly tied a ligature: immediately after he was bitten, the wound was ſcarified and waſhed with a ſolution of lunar cauſtic. The dog did not appear to feel any other injury than what might ariſe from the ligature round his leg: half an hour after he was bitten, the ligature and dreſſing, which conſiſted of lint dipped in the ſolution of lunar cauſtic, were removed. The dog ſoon began to ſink, gradually loſt the uſe of his limbs, breathed quick, was convulſed, and died in half an hour more. On opening this dog, the blood coagulated readily on being emptied from the veſſels.

EXPERIMENT IV.

Another dog was now bitten in the hind leg, and immediately after a ligature was applied, as in the preceding experiment: the wound was ſcarified and waſhed as before, and for two hours the dog continued lively and well, when the ligature was removed.

EXPERIMENT V.

Another puppy having been bit in the ſame place, the wound was ſimply ſcarified, and waſhed with a ſolution of the lunar cauſtic, and for two hours the animal continued free from diſeaſe. In theſe two laſt experiments the dogs were very young, and fed by their mother's milk: at the expiration of the time mentioned, they were carried to her, but ſhe avoided them, and they both died in the courſe of the day.

EXPERIMENT VI.

Observing in the laſt experiments, that the venom was probably weakened by uſe, I waited for two days, and reſolved to try its effects a ſecond time where no medicine was made uſe of. A dog was accordingly bitten by the ſame ſnake in the hind leg in the uſual manner, and in twenty minutes he was dead. It is however worthy of notice, that though the mortal progreſs of the poiſon was as certain as before, it did not now appear to produce any pain, the animal did not howl upon being bit, but gradually ſunk and died. The blood of this dog continued alſo in a fluid ſtate, and was of a dark colour.

EXPERIMENT VII.

A second dog being now bit, the wound was ſcarified and waſhed with a ſolution of lunar cauſtic, and the ſame medicine given in ſmall quantities internally, and repeated at intervals. The dog appeared to be but little affected for about half an hour, when he vomited violently for ſeveral times, gradually ſunk, and died at the expiration of an hour. The blood in this dog coagulated after death.

EXPERIMENT VIII.

A third dog being bit in the ſame manner, the wound was waſhed with a volatile alkaline ſpirit, and the ſame medicine given internally diluted with water, and repeated at intervals. This dog was in a ſhort time convulſed; vomited ſeveral times, and then ſeemed to revive: but he ſoon relapſed, and in three hours he was dead. This dog was not opened.

EXPERIMENT IX.

After the interval of two days the ſame ſnake was brought,

brought, and as the volatile alkali appeared to have been of fome ufe in the laft experiment, it was determined to try it firft: and this experiment, as well as feveral of thofe already related, was conducted by my friend Dr. MOIR with attention and accuracy. A dog was accordingly bitten in the ufual place, and the volatile alkali given as in the preceding experiment: the dog was dead in eighteen minutes.

EXPERIMENT X.

To a dog bitten in the fame place, immediately after the former, that we might have the means of afcertaining the effects of the remedy, nothing was given, he died in eighteen minutes.

EXPERIMENT XI.

OBSERVING in the feventh volume of the medical facts publifhed by Dr. SIMMONS, that *Cayenne* pepper was a powerful remedy for a vegetable poifon obtained from the roots of the *Jatropha Manihot*, or bitter *Caffada*, I determined to make trial of it. To a dog bitten in the ufual manner, five grain pills of the pepper were given, and the wounded limb was wafhed with an infufion of it in warm water. Thefe pills had been repeated four times in the fpace of an hour, when the dog died.

EXPERIMENT XII.

A YOUNG puppy was now bitten in the ear, and exactly half a minute after the ear was cut off. The wound made by the knife bled freely. The dog continued lively for fome time, but in half an hour, he began to droop, and in half an hour more, died. It is obferved by FONTANA, and he fufficiently well accounts for it, that on biting the ears of animals, a drop of venom collects on the ear, at the hole made by the tooth: this was very remarkable in the experiment now related: a quantity of venom, like a large drop of yellow fecum, collected on the ear, and trickled to the ground.

It may be proper in general to obſerve, that in all theſe experiments, the part bitten did not ſwell nor inflame, a livid mark could be diſtinguiſhed where the tooth entered, but could be traced only for a very little way. When the wounds were ſcarified, they bled little or none at all; but before death they commonly bled freely, and the ſcarifications were exceedingly diſcoloured.

In all the dogs which were opened, the blood was found to be in a fluid ſtate. Upon examining, after death, thoſe animals which died by the poiſon of the viper, the Abbe' Fontana commonly obſerves, that he found the blood coagulated about the heart and larger veſſels. My experience has not confirmed this obſervation, which I attribute to the great difference in point of ſtrength poſſeſſed by the venom of the ſnake made uſe of in the preceding experiments. In thoſe caſes where the poiſon acted rapidly, the blood when emptied from the veſſels, ſhewed no diſpoſition to coagulate, and ſeemed to be of a darker colour than natural: but in thoſe caſes where the animals died more ſlowly, the blood readily coagulated on expoſure to the atmoſphere. It is not foreign to the preſent ſubject to obſerve, that while the poiſon of ſerpents in mingling with the blood, has a ſtrong tendency to prevent its coagulation, it on the contrary more readily coagulates in thoſe animals, who have breathed pure oxygen air.*

These experiments will perhaps ſerve little other purpoſe than to prove the quick and deſtructive operation of the poiſon of this kind of ſerpent, and of the inefficacy of the moſt celebrated remedies which have been hitherto diſcovered. It is certain however that upon larger animals the progreſs would have been neither ſo rapid nor deſtructive, and upon the human body it is alſo probable that remedies might

* Beddoes on factitious airs.

have

have been employed with greater ſucceſs: for the delicacy of the human ſkin is very great, and the abſorption of any remedy that might be applied to it, extenſive and ſpeedy. Dogs, we are told, do not perſpire, and it is probable that there exiſts much correſpondence between the powers of abſorption and perſpiration.

The little ſucceſs attending the uſe of the lunar cauſtic in theſe experiments, affords a ſufficiently convincing proof, that the ſnakes made uſe of by the Abbe' Fontana, and the one made uſe of by me, poſſeſs very different degrees of ſtrength in their venom: there are one or two experiments where this remedy appeared to be uſed with ſome effect: but I imputed it to the weakened power of the venom by uſe: and I am fully convinced that the poiſon of this kind of ſerpent, when it is in full vigour, is ſo certainly and rapidly deſtructive, at leaſt to ſmall animals, that neither the lunar cauſtic, nor probably any other remedy, would arreſt its progreſs. It appears that even the delay of half a minute in cutting off the ear that was bitten, was fatal to the animal; and it is ſcarcely poſſible that to a perſon bitten by a ſnake, any kind of remedy could be applied in a ſhorter time. No experiment could be better calculated than this laſt, to ſhew the power of the venom of this kind of ſerpent, for Fontana obſerves, that it is very difficult to kill either dogs or rabbits when bitten in the ears, and out of all the experiments he makes upon the ears of theſe animals, and where no attempt was made to relieve them, none of them died.

I am therefore ſtill of opinion, that the method of cure mentioned in the foregoing paper is the moſt rational, and the moſt likely to ſucceed in preventing death, as well as the other bad conſequences which ſometimes follow the bite of a ſerpent that is not mortal. In the uſe of the nitric acid bath, I ſhould have much confidence: and this confidence ariſes from

from a greater experience of its powerful influence upon the human body in different diſeaſes: this experience will ſoon be communicated to the public by my friend Mr. Scott, whoſe labours in the application of a moſt powerful and uſeful agent in medicine, and eſpecially uſeful as applied to the inhabitants of warm climates, merit the greateſt praiſe.

VI.

VI.

An Account *of the* Petroleum Wells *in the* Burmha *Dominions, extracted from the Journal of a Voyage from* Ranghong *up the River* Erai-Wuddey *to* Amarapoorah, *the present Capital of the* Burmha *Empire.—By Captain* Hiram Cox, *Resident at* Ranghong.

SATURDAY, JANUARY 7, 1797.

WIND easterly, sharp and cold, thick fog on the river until after sun rise, when it evaporated as usual, but soon after collected again, and continued so dense till half past eight A. M. that we could barely see the length of the boat.

Thermometer at sun rise 52°, at noon 74°, in the evening 69°; general course of the river north 20° west, main breadth from one to one and a half miles, current about two and a half miles per hour.

East bank, high, rugged, barren downs, with precipitous cliffs towards the river; of free stone intermixed with strata of quartz, martial ore and red ochre; beech moderately shelving, covered with fragments of quartz, silex, petrifactions and red ochre, and with rocky points projecting from it into the river.

Western bank, a range of low sandy islands, covered with a luxuriant growth of reeds. These at present narrow the stream to three quarters, and in some places to half a mile, but are overflowed in the rains; the main bank rather low and sandy, subject to be overflowed, its whole breadth about three miles to the foot of a range of low woody hills, which in

point of vegetation, form an agreeable contraſt to the eaſtern ſhore; theſe hills are bounded to the weſtward at the diſtance of about twenty miles from the river, by an extenſive range of high mountains, cloathed with wood to their ſummits.

At half paſt ten A. M. came to the lower town of *Rainanghong*, a temple in it of the antique *Hindoo* ſtyle of building.

At noon came to the center town of *Rainanghong* (literally the town through which flows a river of earth oil), ſituated on the eaſt bank of the river, in latitude 20° 26′ north, and longitude 94° 45′ 54″ eaſt of *Greenwich*. Halted to examine the wells of *Petroleum*.

The town has but a mean appearance, and ſeveral of its temples, of which there are great numbers, falling to ruins: the inhabitants however are well dreſſed, many of them with gold ſpiral ear ornaments, and are undoubtedly rich, from the great profit they derive from their oil wells, as will be ſeen below.

At two P. M. I ſet off from my boat, accompanied by the *mewthaghee* or zemindar of the diſtrict, and ſeveral of the merchant proprietors, to view the wells. Our road led to the E. N. E. through dry beds of looſe ſand in the water courſes, and over rugged arid downs and hillocks of the ſame ſoil as deſcribed above; the growth on them, conſiſting of ſcattered plants of *Euphorbium*, the *Caſſia* tree, which yields the *Terra Japonica*, commonly called *cutch* or *cut*, and uſed throughout *India* as a component part of a *beera* of *paun*, alſo a very durable timber for lining the oil wells, and laſtly the hardy *biar* or wild plumb common in *Hindoſtan*.

The ſky was cloudleſs, ſo that the ſun ſhone on us with undiminiſhed force, and being alſo unwell, I

walked ſlowly, and as we were an hour walking to the wells, I therefore conclude they are about three miles diſtant from the river; thoſe we ſaw are ſcattered irregularly about the downs at no great diſtance from each other, ſome perhaps not more than thirty or forty yards. At this particular place, we were informed there are one hundred and eighty wells, four or five miles to the N. E. three hundred and forty more.

In making a well, the hill is cut down ſo as to form a ſquare table of fourteen or twenty feet for the crown of the well, and from this table a road is formed, by ſcraping away an inclined plain for the drawers to deſcend, in raiſing the excavated earth from the well, and ſubſequently the oil. The ſhaft is ſunk of a ſquare form, and lined as the miner proceeds, with ſquares of *Caſſia* wood ſtaves; theſe ſtaves are about ſix feet long, ſix inches broad, and two thick; are rudely jointed and pinned at right angles to each other, forming a ſquare frame, about four and a half feet in the clear for the uppermoſt ones, but more contracted below. When the miner has pierced ſix or more feet of the ſhaft, a ſeries of theſe ſquare frames are piled on each other, and regularly added to at top; the whole gradually ſinking, as he deepens the ſhaft, and ſecuring him againſt the falling in of the ſides.

The ſoil, or ſtrata to be pierced, is nearly ſuch as I have deſcribed the cliffs to be on the margin of the river, that is, firſt, a light ſandy loam intermixed with fragments of quartz, ſilex, &c.; ſecond, a friable ſand ſtone, eaſily wrought, with thin horizontal ſtrata of a concrete of martial ore, talc and indurated argill (the talc has this ſingularity, it is denticulated, its lamina being perpendicular to the horizontal lamina of the argill on which it is ſeated) at from ten or fifteen feet from the ſurface, and from each other, as there are ſeveral of theſe veins in the great body of free ſtone. Thirdly, at ſeventy cubits, more or leſs, from the ſurface, and immediately below the free ſtone, a pale blue

blue argillaceous earth (ſhiſtous) impregnated with the petroleum and ſmelling ſtrongly of it. This they ſay is very difficult to work, and grows harder as they get deeper, ending in ſhiſt or ſlate, ſuch as found covering veins of coal in *Europe*, &c. Below this ſhiſt at the depth of about 130 cubits is coal. I procured ſome, intermixed with ſulphur and pyrites, which had been taken from a well, deepened a few days before my arrival, but deemed amongſt them a rarity, the oil in general flowing at a ſmaller depth. They were piercing a new well when I was there, had got to the depth of eighty cubits, and expected oil at ten or twenty cubits more.

THE machinery uſed in drawing up the rubbiſh, and afterwards the oil from the well, is an axle croſſing the center of the well, reſting on two rudeforked ſtaunchions, with a revolving barrel on its center, like the nave of a wheel, in which is a ſcore for receiving the draw rope; the bucket is of wicker work, covered with dammer, and the labour of the drawers, in general three men, is facilitated by the deſcent of the inclined plain, as water is drawn from deep wells in the interior of *Hindoſtan*.

To receive the oil, one man is ſtationed at the brink of the well, who empties the bucket into a channel made on the ſurface of the earth leading to a ſunk jar, from whence it is laded into ſmaller ones, and immediately carried down to the river, either by coolies or on hackeries.

WHEN a well grows dry, they deepen it. They ſay none are abandoned for barrenneſs. Even the death of a miner, from mephitic air, does not deter others from perſiſting in deepening them when dry. Two days before my arrival, a man was ſuffocated in one of the wells, yet they afterwards renewed their attempts, without further accident. I recommended their trying the air with a candle, &c. but ſeemingly with little effect.

THE

The oil is drawn pure from the wells, in the liquid ſtate as uſed, without variation, but in the cold ſeaſon it congeals in the open air, and always loſes ſomething of its fluidity; the temperature of the wells preſerving it in a liquid ſtate fit to be drawn. A man who was lowered into a well of 110 cubits, in my preſence, and immediately drawn up, perſpired copiouſly at every pore: unfortunately I had no other means of trying the temperature. The oil is of a dingy green and odorous; it is uſed for lamps, and boiled with a little dammer (a reſin of the country), for paying the timbers of houſes, and the bottoms of boats, &c. which it preſerves from decay and vermin; its medicinal properties known to the natives is as a lotion in cutaneous eruptions, and as an embrocation in bruiſes and rheumatic affections.

The miners poſitively aſſured me no water ever percolates through the earth into the wells, as has been ſuppoſed, the rains in this part of the country are ſeldom heavy, and during the ſeaſon a roof of thatch is thrown over the wells, the water that falls ſoon runs off to the river, and what penetrates into the earth is effectually prevented from deſcending to any great depth by the increaſing hardneſs of the oleagenous argill and ſhiſt; this will readily be admitted when it is known that the coal mines at *Whitby* are worked below the harbour, and the roof of the galleries not more than fifty feet from the bed of the ſea, the deficiency of rain in this tract may be owing to the high range of mountains to the weſtward, which range parallel to the river, and arreſt the clouds in their paſſage, as is the caſe on the eaſtern ſide of the peninſula of *India*.

Solicitous to obtain accurate information on a ſubject ſo intereſting as this natural ſource of wealth; I had all the principal proprietors aſſembled on board my boat, and collected from them the following particulars, the foregoing I learned at the wells from the miners and others.

I ENDEAVOURED to guard againſt exaggeration, as well as to obviate the caution and reſerve which mercantile men in all countries think it neceſſary to obſerve, when minutely queſtioned on ſubjects affecting their intereſts, and I have reaſon to hope my information is not very diſtant from the truth.

THE property of theſe wells is in the owners of the ſoil, natives of the country, and deſcends to the heirs general as a kind of entailed hereditament, with which it is ſaid government never interferes, and which no diſtreſs will induce them to alienate. One family perhaps will poſſeſs four or five wells, I heard of none who had more, the generality have leſs, they are ſunk by, and wrought for the proprietors; the coſt of ſinking a new well is 2000 tecals flowered ſilver of the country, or 2500 ſicca rupees; and the annual average net profit 1000 tecals, or 1250 ſicca rupees.

THE contract price with the miners for ſinking a well is as follows: for the firſt forty cubits they have forty tecals, for the next forty cubits three hundred tecals, and beyond theſe eighty cubits to the oil they have from thirty to fifty tecals per cubit, according to the depth (the *Burmha* cubit is nineteen inches *Engliſh*); taking the mean rate of forty tecals per cubit, and one hundred cubits as the general depth at which they come to oil, the remaining twenty cubits will coſt 800 tecals, or the whole of the miner's wages for ſinking the ſhaft 1140 tecals; a well of a 100 cubits will require 950 caſſia ſtaves, which at five tecals per hundred will coſt 47½ tecals. Portage and workmanſhip, in fitting them, may amount to 100 tecals more; the levelling the hill for the crown of the well, and making the draw road, &c. according to the common rate of labour in the country, will coſt about 200 tecals; ropes, &c. and proviſions for the workmen, which are ſupplied by the proprietor when making a new well; expences of propitiatory ſacrifices, and perhaps a ſigniorage fine to government for permiſſion to ſink a new well, conſume the remaining 512½ tecals; in deepen-

4 ing

ing an old well they make the beſt bargain in their power with the miners, who rate their demand per cubit according to its depth and danger from the heats or mephitic air.

THE amount, produce, and wages of the labourers who draw the oil, as ſtated to me, I ſuſpect was exaggerated or erroneous from miſinterpretation on both ſides.

THE average produce of each well, per diem, they ſaid was 500 viſs, or 1825lbs. avoirdupois, and that the labourers earned upwards of eight tecals each per month; but I apprehend this was not meant as the average produce, or wages for every day or month throughout the year, as muſt appear from a further examination of the ſubject, where facts are dubious we muſt endeavour to obtain truth from internal evidence. Each well is worked by four men, and their wages is regulated by the average produce of ſix days labour, of which they have one ſixth, or its value at the rate of one and a quarter tecals per hundred viſs, the price of the oil at the wells; the proprietor has an option of paying their ſixth in oil, but I underſtand he pays the value in money, and if ſo, I think this is as fair a mode of regulating the wages of labour as any where practiſed; for in proportion as the labourer works he benefits, and gains only as he benefits his employer. He can only do injury by over-working himſelf, which is not likely to happen to an *Indian*; no proviſions are allowed the oil drawers, but the proprietor ſupplies the ropes, &c. and laſtly the king's duty is a tenth of the produce.

Now ſuppoſing a well to yield 500 viſs per diem throughout the year, deducting one ſixth for the labourers, and one tenth for the king, there will remain for the proprietor, rejecting fractions, 136,876 viſs, which at 1¼ tecals, the value at the wells, is equal to 1710 tecals per annum. From this ſum there is to be

deducted only a trifle for draw ropes, &c. for I could not learn that there was any further duties or expence to be charged on the produce, but the merchants say they gain only a neat 1000 tecals per annum for each well, and as we advance we shall have reason to think they have given the maximum rather than the minimum of their profits, hence therefore we may infer that the gross amount produce per annum is not 182,500 viss.

FURTHER, the four labourers share or one sixth deducting the king's tythe, will be 2250 viss per month of thirty days, or in money at the above price twenty-eight tecals fifty avas, or seven tecals twelve avas each man per month, but the wages of a common labourer in this part of the country, as the same persons informed me, is only five tecals per month when hired from day to day; they also admitted that the labour of the oil drawers was not harder than that of common labourers, and the employment no ways obnoxious to health. To me the smell of the oil was fragrant and grateful, and on being more indirectly questioned (for on this part of the subject perhaps owing to the minuteness of my enquiries I observed most reserve), they allowed that their gain was not much greater than the common labourers of the country, nor is it reasonable to expect it should, for as there is no mystery in drawing of oil, no particular hardships endured, or risk of health, no compulsion or prevention pretended, and as it is the interest of the proprietors to get their work done at the cheapest rate, of course the numbers that would flock to so regular and profitable an employment, would soon lower the rate of hire nearly at least to the common wages of the country; besides I observed no appearance of affluence amongst the labourers, they were meanly lodged and clad, and fed coarsely, not on rice, which in the upper provinces is an article of luxury, but on dry grains and indigenous roots of the nature of *Cassada*, collected in the wastes by their women and children; further it is not reasonable to suppose that these labourers worked constantly, nature always requires

requires a reſpite, and will be obeyed, however much the deſire of gain may ſtimulate, and this cauſe muſt more particularly operate in warm climates to produce what we often improperly call indolence. Even the rigid Cato emphatically ſays, that the man who has not time to be idle is a ſlave. A due conſideration of this phyſical and moral neceſſity ought perhaps to vindicate religious legiſlators from the reproaches too liberally beſtowed on them for ſanctioning relaxation; be that as it may, I think it is ſufficiently apparent that the article of wages is alſo exaggerated, and that 500 viſs muſt only be conſidered as the amount produce of working days, and not an average for every day in the year. The labour of the miners, as I have obſerved above, is altogether diſtinct from the oil drawers, and their pay proportioned to the hardſhips and riſks they endure.

Assuming therefore as data, the acknowledged profit of 1000 tecals per annum for each well, which we can hardly ſuppoſe exaggerated, as it would expoſe the proprietors to an additional tax, and the common wages of precarious employment in the country, that is one month with another, including holy days the year round, four and a quarter tecals per month as the pay of the oil drawers, which includes the two extremes of the queſtion, it will make the average produce of each well per diem, 300 viſs or 109,500 viſs per annum, equal to 399,675 lbs. avoirdupois, or tons 178,955 lbs. or in liquid meaſure 793 hogſheads of ſixty-three gallons each; and as there are 520 wells regiſtered by government, the groſs amount produce of the whole per annum will be 56,940,000 viſs or 92,781 tons 1560 lbs. or 412,360 hogſheads, worth at the wells, at one and a quarter tecals per hundred viſs, 711,750 tecals or 889,737 ſicca rupees.

From the wells, the oil is carried, in ſmall jars, by cooleys, or on carts, to the river; where it is delivered to the merchant exporter at two tecals per hundred

 viſs,

viſs, the value being enhanced three-eighths by the expence and riſk of portage, therefore the groſs value or profit to the country of the whole, deducting five per cent for waſtage, may be ſtated at 1,081,860 tecals, or 1,362,325 ſicca rupees per annum, yielding a direct revenue to the king of 136,232 ſicca rupees per annum, and perhaps thrice as much more before it reaches the conſumer; beſides the benefit the whole country muſt derive from the productive induſtry called into action by the conſtant employment of ſo large a capital on ſo gruff an article. There were between ſeventy and eighty boats, average burthen ſixty tons each, loading oil at the ſeveral wharfs, and others conſtantly coming and going while I was there. A number of boats and men alſo find conſtant employment in providing the pots, &c. for the oil, and the extent of this ſingle branch of internal commerce (for almoſt the whole is conſumed in the country) will ſerve to give ſome inſight into the internal commerce and reſources of the country.

At the wells the price of the oil is ſeven annas ſeven pies per 112lbs. avoirdupois; at the port of *Ranghong* it is ſold at the average rate of three ſicca rupees three annas and ſix pies per cwt. or per hogſheads of ſixty-three gallons, weighing 504 lbs. fourteen rupees ſeven annas nine pies, excluſive of the caſk, or per *Bengal* buzar maund two rupees five annas eight pies, whereas the muſtard ſeed, and other vegetable oils, ſell at *Ranghong* at eleven rupees per buzar maund.

To conclude, this oil is a genuine petroleum, poſſeſſing all the properties of coal tar, being in fact the ſelf ſame thing, the only difference is, that nature elaborates in the bowels of the earth that for the *Burmhas*, for which *European* nations are obliged to the ingenuity of Lord Dundonald.

VII.

VII.

ON THE MAXIMUM OF MECHANIC POWERS, AND THE EFFECTS OF MACHINES WHEN IN MOTION.

By Lieutenant William Lambton,

Of His Majesty's 33d Regiment of Foot.

MOST mathematicians, in treating on the ſcience of mechanics, have drawn their concluſions from conſidering the weight and power in a ſtate of equilibrium, and have deduced their proportions from their reſpective diſtances of each from the center of motion; or from what the velocities would be, ſuppoſing them to be put in a moving ſtate. But in the actual application of any machine, whether ſimple or compound, we ſhall find that when it is put in motion by the ſuperior force of the power, there will be a certain ratio between the weight and power, ſo that in any given time the effect may be the greateſt poſſible. The various and moſt uſeful caſes which relate to this ſubject are compriſed in the following problems, and as it is my intention to determine the preciſe effects of ſuch powers as are of the moſt general uſe in the conſtruction of machines, ſuch as the lever, the wheel, and axle, &c. and where the power applied to raiſe the weight, acts by the force of gravity; it will be neceſſary to take into conſideration the effects of their own maſſes, and therefore ſome general propoſitions muſt be premiſed relative to the centers of percuſſion and gyration of the reſpective moving powers; and to compare the maſs collected into the center of percuſſion or gyration of a beam or ſolid wheel, to that power, which acting at the extremity would give the ſame angular velocity.

It has already been demonſtrated by mathematicians that if s be the center of ſuſpenſion, or rotation; o the center of percuſſion, and g the center of gyration;—and if p be a particle and d its diſtance from s, then $so = \frac{\text{all the } pd^2}{\text{Force of the body}}$, and $sg = \sqrt{\frac{\text{all the } pd^2}{\text{the body}}}$, which expreſſions are univerſal, let the form of the body be what it will. Now as the lever and wheel are powers whoſe operations are materially influenced by their own weight, I ſhall conſider every caſe in which they can poſſibly be effected. And notwithſtanding that the part of mechanics relating to percuſſion and gyration, has been ſo copiouſly treated on by others, yet as it becomes ſo eſſential a part in the preſent theory, I ſhall include ſuch propoſitions as immediately apply, and put them in the moſt convenient forms. Some of them, I believe are new, and particularly ſuited to the preſent ſubject.

PROB. I. LET A B be a bar or beam perfectly ſtreight and of uniform thickneſs, having its point of ſuſpenſion S, at any variable diſtance from the extremity A: it is required to determine the diſtance of the center of percuſſion from S.

A

.S

B

PUT $AB = v$, $AS = x$, and therefore $SB = v - x$; and let the ſaid diſtance of the center of percuſſion from s be y, then $\dot{v}$ being an indefinitely ſmall plane at right angles to the axis of the beam, $\overline{v-x}|^2 \times \dot{v}$ will expreſs one pd^2 or the fluxion of all the pd^2 in A B; and by the ſame reaſoning, $\overline{v-x} \times \dot{v}$ is the fluxion of the force of A B.—Hence $y = \frac{\text{flu: } \overline{v-x}|^2 \times \dot{v}}{\text{flu: } \overline{v-x} \times \dot{v}} = \frac{2v^2 - 6vx \times 6x^2}{3v - 6x}$; where x and v may be taken in any ratio to each other. If $x = o$ or the center of ſuſpenſion be at A, then $y = \frac{2}{3}v$ as has been proved by others. If $x = \frac{1}{3}v$, then $y = \frac{2}{3}v$ alſo, in which caſe the center of percuſſion will be at the other extremity B, and when $x = \frac{1}{2}v$, then $y = o$, and the center of percuſſion coinciding with the center of gravity,

gravity, the power of oſcillation will ceaſe, and the motion, if there be any, will be rotatory.

Cor. 1. If it be required to determine the diſtance of the center of ſupenſion when the vibrations are the quickeſt poſſible, then y, or its equal $\frac{2v^2-6vx+6x^2}{3v-6x}$ becomes a maximum, and therefore its fluxion, by making x variable, is $=0$. Hence $\overline{12x\dot{x}-6v\dot{x}}\times\overline{3v-6x}-3\dot{v}\times\overline{2v^2-6vx+6x^2}=0$, and $x=\frac{v}{2}\pm\frac{v}{2}\sqrt{\frac{1}{3}}$ or $\frac{v}{2}-\frac{v}{2}\sqrt{\frac{1}{3}}$ when S is taken towards A, or on that ſide of the center of gravity.

Cor. 2. Other forms may be obtained if $AS=x$ and $SB=z$, both variable quantities:—for then $\dot{x}+\dot{z}$ will expreſs the fluxion of both ends, and $x^2\dot{x}+z^2\dot{z}$ the fluxion of all the pd^2 in AB. And ſince the force of any oſcillating body may be expreſſed by multiplying the diſtance of the center of gravity from the center of ſuſpenſion, into the body itſelf, the force of AB is therefore defined by $\frac{z^2-x^2}{2}$ Hence $y=\frac{\text{flu}:z^2\dot{z}+\text{flu}:x^2\dot{x}}{\frac{z^2-x^2}{2}}=\frac{z^3\times x^3}{z^2-x^2}\times\frac{2}{3}$.

Then when $x=0$, y becomes equal $\frac{2}{3}z$; and if $x=\frac{1}{2}z$, $y=z$;—and when x and z are equal, y vaniſhes.

Prob. 2. The notation remaining, as in the laſt problem: let the center of gyration be required, while the beam A B is made to revolve round a center S at any variable diſtance from A: and let w expreſs the diſtance of the center of gyration from S. Then we ſhall have $w=\sqrt{\frac{\text{flu}:\overline{v-x}|^2\times\dot{v}}{v}}=\sqrt{\frac{v^2-3vx+3x^2}{3}}$. Hence if $x=0$, $w=v\sqrt{\frac{1}{3}}$. and when $x=\frac{v}{2}$, ſo that S may be in the center of gravity of AB, then $w=\frac{v}{2}\sqrt{\frac{1}{3}}$. When $x=\frac{1}{3}v$, w becomes equal $\frac{1}{3}v$ alſo, and in this caſe the center of gyration will be at the ſame diſtance from B, that the center of rotation is from A.

Cor.

Cor. It appears from Cor. 1 of the laſt problem, that when the vibrations of a beam are the quickeſt poſſible, x is equal to $\frac{v}{2} - \frac{v}{2}\sqrt{\frac{1}{3}}$, when the point of ſuſpenſion is taken on that ſide the center of gravity towards A. Now ſince $\frac{v}{2}$ is the diſtance of the center of gravity of the beam from A or B, it follows that $\frac{v}{2}\sqrt{\frac{1}{3}}$ expreſſes the diſtance of the center of percuſſion from the center of gravity when the vibrations are the quickeſt poſſible: But it appears from this problem, that $\frac{v}{2}\sqrt{\frac{1}{3}}$ expreſſes the diſtance of the center of gyration from the center of gravity, when the beam is made to revolve on that center. Therefore if the beam be ſuſpended, by what in this caſe is the center of gyration, the vibrations will be the quickeſt poſſible.

Cor. 2. If the parts AS, SB be denoted by x and z as in Cor. 2, of the laſt prob. then $w = \sqrt{\frac{\text{flu.}\, z^2\dot{z} + \text{flu.}\, x^2\dot{x}}{z+x}} = \sqrt{\frac{z^3+x^3}{3z+3x}}$. Then if $x=0$, and z become equal A B, $w = z\sqrt{\frac{1}{3}} = v\sqrt{\frac{1}{3}}$: and when x and z are equal, $w = x\sqrt{\frac{1}{3}}$ or $z\sqrt{\frac{1}{3}} = \frac{v}{2}\sqrt{\frac{1}{3}}$, and laſtly, if $x = \frac{1}{2}z$, then $w = \frac{1}{2}z$; all which are preciſely the ſame as in the laſt problem.

Prob. 3. Let ABD be a ſolid beam of uniform thickneſs, having an angle at D, and let AD=DB, and AE=EB=x, and if the line E D be continued to the center of rotation S, then S E will be perpendicular to AB, and therefore A S=B S, and the beam will be in the ſame plane with the triangle ASB, and being made to revolve round the center S, retaining its poſition with reſpect to the line S E: it is required to determine the diſtance of the center of gyration from S.

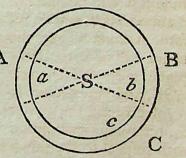
Put DS=d, and AD=B D=v, and alſo ED=a. Then

AS

$AS^2 = v^2 + d^2 + 2ad$; and therefore $2v^2\dot{v} + 2d^2\dot{v} + 2ad\,\dot{v}$ will be the fluxion of all the pd^2 in the whole beam ABD. Hence $w = \sqrt{\frac{\text{flu.}\, 2v^2\dot{v} + 2d^2\dot{v} + 2ad\dot{v}}{2v}} = \sqrt{\frac{v^2 + 3d^2 + 6ad}{3}}$ which, when a vanishes, and the beam coincides with the line AB, becomes equal $\sqrt{\frac{v^2 + 3d^2}{3}}$:—and if d vanish $w = v\sqrt{\frac{1}{3}}$, for then D will coincide with S and A D B will become two beams revolving on their extremities.

PROB. 4. LET ABC represent a circular superfices, or solid wheel of uniform thickness, so that its weight may be as its area; and let it revolve round its center S; it is required to determine the distance w of its center of gyration from S.

PUT A = the area of the circle whose diameter is unity, and r = radius of A B C. Then $4\,Ar^2$ is the area of ABC, whose fluxion is $8\,A\,r^3\,\dot{r}$; and therefore $8\,A\,r^3\,\dot{r}$ is the fluxion of all the pd^2 in A B C. Hence $w = \sqrt{\frac{\text{flu. } 8\,A\,r^3\,\dot{r}}{\text{flu. } 8\,A\,r\,\dot{r}}} = r\sqrt{\frac{1}{2}}$ which expression applies to every solid wheel of uniform thickness whose radius is r.

PROB. 5. LET ABC and abc be two concentric circles whose respective radii are R, r;—if the plane or solid wheel whose area is $a\,b\,c$ be taken away, and the remaining plane or solid Aa Bb Cc, uniformly thick, be conceived to revolve round the center S; it is required to determine the distance of its center of gyration from S.

PUT A = the area of the circle whose radius is unity, then $4\,A\,R^2$ will be the area of the greater circle, and

then

$4\,A\,r^2$ the area of the lefs one; and therefore $4\,A\,R^2 - 4\,A\,r^2 =$ the area of the annulus. Now $8\,A\,R\,\dot{R}$ is the fluxion of that area, and $8\,A\,R^3\,\dot{R}$ the fluxion of all the $p\,d^2$. Hence $w = \sqrt{\frac{\text{flu } 8\,A\,R^3\,\dot{R}}{4AR^2 - 4Ar^2}} = \sqrt{\frac{R^4}{2R^2 - 2r^2}}$, which when r vanifhes, or the whole becomes folid, is equal $R\sqrt{\frac{1}{2}}$ as in the laft problem.

Cor. The fectors S a and S A, being to each other as the areas of their refpective circles, and therefore as the fquares of the diameter of thefe circles; and if A in this cafe reprefent a fimilar fector of the circle whofe radius is unity, the fame refult will be had with refpect to the parts Aa, and Bb, as in the former cafe, for the diftance of the center of gyration from the center S, will in this cafe be $\sqrt{\frac{R^4}{2R^2 - 2r^2}}$. And when r vanifhes fo that the fectors are complete fectors of the larger circle, than $w = \sqrt{\frac{R^2}{2}} = R\sqrt{\frac{1}{2}}$.

Prob. 6. Let A B be a beam uniformly thick, having its point of fufpenfion at any variable diftance from A, as at S; and let the beam be made to vibrate with any given angular velocity: it is required to determine that power, which acting at the extremity B, would have the fame angular force as the whole mafs collected into, and acting at, the center of percuffion.

Let the length A B be v, $AS = x$, and $SB = v - x$; and the diftance of the center of percuffion from S equal y: then by the general expreffion $y = \frac{\text{all the } pd^2}{\text{force of the body}}$. Now if inftead of taking all the $p\,d^2$ in the whole beam, or fuppofing all the particles collected into the center of percuffion, we conceive a power p' acting at the extremity B fuch as multiplied by the fquare of its diftance S B, $(v-x)$, its force fhall be equal to all the $p\,d^2$ in the whole beam: then will

A

S

$y =$

$y = \frac{p' \times \overline{v-x}|^2}{\text{force of the beam}}$, and $p' = \frac{v}{\overline{v-x}|^2} \times$ force of the beam; that is $p' = \frac{v}{\overline{v-x}|^2} \times \text{flu.}\ \overline{v-x}.\ \dot{v} = \frac{y \times \overline{v-2x}}{2v^2 - 4vx \times 2x^2} \times$ by the maſs. And by ſubſtituting the value of y, we have $p' = \frac{v^2 - 3vx + 3x^2}{3v^2 - 6 + vx 3x^2} \times$ by the maſs, a general expreſſion for the value of p' for any beam of equal thickneſs, and whoſe weight is as the length.

Cor. 1. Now when x vaniſhes, $p' = \frac{1}{3}$ the maſs; ſo that when the beam is ſuſpended at the extremity A, then the weight which applied at the diſtance AB to an inflexible line vibrating with any given velocity, ſo as to have the ſame force as the maſs of the beam collected into its center of percuſſion, and moving with the ſame angular velocity, ſhall be equal one-third the weight of the beam.

Cor. 2. If x be taken to v in the ratio of 1 to n; then by ſubſtituting the value of x in the above expreſſion, $p' = \frac{n^2 - 3n + 3}{3n^2 - 6n + 3} \times$ by the weight, when that weight is defined by v, its length; and the weight of the ſhorter end, unity. Or ſuppoſe the whole weight to be W, then $p' = \frac{n^2 - 3n + 3}{3n^2 - 0n + 3} \times W$: and in this caſe the weight of the ſhorter end will be defined by $\frac{W}{n}$, and that of the longer by $\frac{\overline{n-1}.W}{n}$, let W be what it will.

Cor. 3. When $n = 2$ then $p' = \frac{1}{3}W$: but it muſt be remembered that p' is the power of the *whole* beam, ſince it is compared with the whole maſs collected into the center of percuſſion; and is therefore the p' of both ends reduced to B, and hence in caſes where the two ends are equal, as in the preſent one, the p' of each end is $\frac{1}{3}$ of half the beam, which together are equal to $\frac{1}{3}$ W, the p' of the whole beam.

Prob.

PROB. 7. LET S be the center of rotation, and let the beam be made to revolve horizontally with any given angular velocity: it is required to determine the p' of the whole beam acting at B.

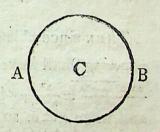
THE notation being the same as in the last problem and w being the distance of the center of gyration from S, then $w^2 = \frac{\text{a'l the } pd^2}{\text{the body}}\ \frac{p'd^2}{\text{the beam}}$; therefore we have $p' = \frac{w^2}{d^2} \times$ the beam, $= \frac{v^2 - 3vx + 3x^2}{3v^2 - 6vx + 3x^2} \times$ the weight of the beam the same as in the last problem. Hence in this case, if x be to v as 1 to n, then $p' = \frac{n^2 - 3n + 3}{3n^2 - 6n + 3} \times W$, and when the two ends become equal, so that the center of rotation coincides with the center of gravity, then the beam may revolve either vertically or horizontally, and the p' of both ends together will be $\frac{1}{3}$ the weight.

COR. 1. OTHER forms may be derived for the value of p', if the two arms be called a and b, and their weights c and d respectively. For by the general expressions $y = \frac{p'd^2}{\text{force of the beam}}$, and $w^2 = \frac{p'd^2}{\text{the beam}}$. Now by the first of these, if p' be the power of the whole beam acting at B, we have $p' = \frac{y}{d^2} \times$ the force of the beam $= \frac{b^3 + a^3}{3b^3 + 3ab^2} \times \overline{c+d}$; and by the second, $p' = \frac{w^2}{d^2} \times$ the beam $= \frac{b^3 + a^3}{3b^3 3ab^2} \times \overline{c+d}$: in both cases $= \frac{b^3 + a^3}{3b^3 + 3ab^2} \times$ the weight of the beam. Now when $a = b$, $p' = \frac{c+d}{3}$ or $\frac{1}{3}$ the weight; and if $a = o$, $p' = \frac{1}{3}$ the weight also.

COR. 2. IT further appears, that in all cases of an oscillating motion of the beam, the p' is defined by multiplying the distance of the center of percussion from the center of suspension, by the mass or weight, and dividing by the *square of the distance* at which p' is to act: and that in all cases of a gyrating motion of the beam, the p' is defined by multiplying the square of the distance of the center of gyration from the center of rotation, by the mass or weight, and dividing by the *square of the distance* at which p' is to

act. Hence it follows in both cafes, that if the p' of the *same beam* or body, be reduced to different diftances, its value will be *inversely as the squares of these distances.*

PROB. 8. LET A be the area of the circle whofe diameter is unity, and $r =$ the radius of the circular plane ABC: and let p represent the periphery of a circle, or a ring into which we will conceive as many particles collected, as, with any angular velocity, shall have the same force, as the mass of the circular plane, (or solid wheel of the same diameter, and uniformly thick,) collected into a circle, whose radius is the distance of the center of gyration from the center C, moving with the same angular velocity: the value of p' is required.

Now it is evident from the nature of the problem, that $p'r^2$ will be equal to all the pd^2 in ABC. And since $4Ar^2$ is the area of ABC, we have $w^2 = \frac{p'r^2}{4Ar^2}$ and $p = w^2 \times 4A = 2Ar^2$ by substituting the value of w^2 which value is equal half the mass of ABC, whether it be a circular plane or solid wheel.

Now this power p' may be either a ring, as is here conceived, or a weight equal to that of the ring, divided into two equal parts, each acting at the extremity of a lever, revolving on its center, and whose length is equal to the diameter of the ring; and in the same manner we may conceive the p' in problem 7 to be resolved into a ring of equal weight whose diameter is equal AB.

PROB. 9. LET it be required to determine the p' of the whole beam AB in Prob. 3, acting at A, while the beam revolves horizontally on the center S.

THEN $p = \frac{w^2}{d^2} \times$ the weight $= \frac{v^2+3d^2+6ad}{3v^2+3d^2+6ad} \times W$. Now in this case, when a vanishes, then p' becomes $= \frac{v^2+3d^2}{3v^2+3d^2} \times W$; when d vanishes, and D coincides with S, in which case v becomes equal AS, and AD and DB become two beams revolving on one end each; then the p' of both the beams together is equal $\frac{1}{3}$ W, where W is the weight of both the beams; and therefore the p' of each, acting at the extremity A or B, is $\frac{1}{3}$ its own weight, the same as in Prob. 6, Cor. 1.

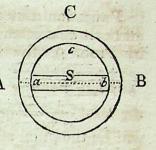
PROB. 9. LET the annulus in Prob. 5 be proposed, to determine the p' of the whole, acting at the distance SA, any where in the circumference.

THEN since w^2 is equal $\frac{R^4}{2R^2-2r^2}$, where $R = SA$, and $r = sa$ we shall have $p' = \left(\frac{w^2}{d^2} \times \text{the body}\right) \frac{R4}{2R^2-2r^2} \times \frac{4 \times \overline{R^2A - r^2A}}{R^2} = \frac{R^2}{R^2-r^2} \times \frac{1}{2}$ the weight of the annulus: and when $r = o$, so that the interior circle may vanish, and ABC become an entire circle or solid wheel, then $p' = \frac{1}{2}$ the mass, the same as in Prob. 8.

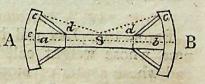
COR. IF A represent the area of a sector of a circle whose diameter is unity, similar to the sectors AS or as in Cor. of Prob. 8; then the p' of both the parts Aa and BC together, will be equal $\frac{R^2}{R^2-r^2} \times 2\ \overline{AR^2 - 2Ar^2} = \frac{R^2}{R^2-r^2} \times \frac{1}{2}$ the mass of the two parts together.

PROB. 10. LET Aa, bB, cC, be a solid ring, having a solid beam whose center is the center of the annulus, as in the next figure; it is required to determine the p' of the whole acting at B.

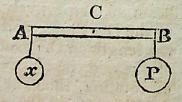
LET

LET W′ express the weight or mass of the annulus; and w that of the cross beam $a\,b$, which beam is of equal thickness. Then the p' of the beam at b is $\frac{1}{3}\,w$ by Prob. 6, Cor. 3; which reduced to B, is $\frac{r^2 w}{3r}$, by Cor. to Prob. 7, and the p' of the ring is $\frac{R^2}{R^2-r^2} \times \frac{1}{2}\,W'$, by the last Prob. Hence p' of the whole is $\frac{R^2}{R^2-r^2} \times \frac{W'}{2} + \frac{r^2 w}{3R^2}$.

COR. If W′ express the weight of the two ends Aa, Bb, being parts of the annulus, whose center is S, and if the weight of the beam ab, whose center is also S, be expressed by w, as before; then the p' of the whole beam, and both ends together, will be $\frac{R^2}{R^2-r^2} \times \frac{W'}{2} + \frac{r^2 w}{3R}$.

PROB. 11. WHEN the two circular ends are braced to the beam ab by the braces $c\,d$, $c\,d$, on both sides of the beam: it is required to determine the p' of the whole, acting at B, when moving on the center S.

LET W′ and w represent the weight of the two circular ends, and the beam $a\,b$, respectively, as in the last Prob.; and let the length $c\,d$, be v, and the weight of the two braces at one end, be w', Now if s be supposed the center of rotation, then the case in Prob. 9 would apply. And because $s\,c$ varies so little from $s\,e$ or Sa, in a beam of considerable length, that any deviation from the truth which might arise from considering $s\,c$ as r, would be so trifling as to render any further

investigation unnecessary. Supposing then $sc = Sa$; and call $de = a$, then $sd = r - a$ very nearly. Then by Prob. 9, the p' of the braces at one end is $\frac{v^2 + 3.\overline{r-a}|^2 + 6.\overline{ar - a^2}}{3v^2 + 3.\overline{r-a}|^2 + 6.\overline{ar-a^2}} \times w'$, or equal kw', by substituting k for $\frac{v^2 + 3.\overline{r-a}|^2 + 6.\overline{ar-a^2}}{3v^2 + 3.\overline{r-a}|^2 + 6.\overline{ar-a^2}}$. And therefore $2\,kw'$ will be the p' of all the braces at the distance Sb, then by Cor. 2 of Prob. 7. As $R^2 : r^2 :: 2\,kw' : \frac{2kw'r^2}{R^2}$, the p' of all the braces reduced to the distance SB. Hence $\frac{R^2}{R^2 - r^2} \times \frac{W'}{2} + \frac{r^2 w}{3R^2} + \frac{2kw'r^2}{R^2}$ expresses the p' of the beam, circular ends and braces together, very nearly.

HENCE is obtained the value of p' in the most useful cases that occur; and this p' being the power, which acting at the extremity of the different figures here enumerated, will give the same angular velocity, as their respective masses acting at the center of percussion or gyration: it is therefore the masses themselves reduced to the distance from the center of motion, at which, if a weight be applied, to act as a power for overcoming a resistance, this p' will be so much in addition to the mass to be moved by that weight, and must therefore be considered in computing the effects of all machines after they acquire a velocity. The use of these results will appear in the following problems:

PROB. 12. LET AB be a beam of equal thickness, whose weight call W, and whose center of motion C, is in the center of the beam. Then if P be a given weight, acting as a power to move the weight x; the value of x is required when its momentum is the greatest possible.

Since W expresses the weight of the beam, $\frac{1}{3}W$ will express the p' of the whole beam acting at B. And since both ends are of equal length, $P-x$, will be the moving power, and $P+\frac{1}{3}W+x$ is the mass to be moved, with respect to angular velocity. Hence $\frac{P-x}{P+\frac{1}{3}W+x}$ is the accelerative, and is as the velocity with which P will move after having overcome the resistance. But since $AC=CB$, this quantity is also the accelerative force of x, and therefore the momentum of x is $\frac{Px-x^2}{P+\frac{1}{3}W+x}$, which being a maximum, its fluxion is equal nothing: hence $\overline{P\dot{x}-2x\dot{x}} \times \overline{P+\frac{1}{3}W+x}-\dot{x}\times\overline{Px-x^2}=0$, from which, when reduced, we have $x=\frac{\sqrt{W^2+9PW+18P^2}-W-3P}{3}$.

Prob. 13. Let the arms of the beam AB be of unequal lengths, and let the whole beam be to the shorter end, both in length and weight, as n to unity. And let W express the weight of the whole beam. Then if P as a power be suspended at B, it is required to determine the weight x; so that it may ascend, when overcome by P, with the greatest momentum possible.

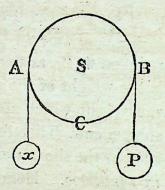
Then by Problem 6, Cor. 2, the p of the whole beam is equal $\frac{n^2-3n+3}{3n^2-6n+3}\times W=gW$, by putting $g=\frac{n^2-3n+3}{3n^2-6n+3}$ and the weight of the shorter end will be $\frac{W}{n}$, that of the longer $\frac{\overline{n-1}.W}{n}$, by the same Cor. Now the weight of the longer arm being $\frac{\overline{n-1}.W}{n}$, its weight when reduced to B will be $\frac{\overline{n-1}.W}{2n}$, and by the same reasoning the weight of the shorter end AC, reduced to A, will be $\frac{W}{2n}$: and as $n-1$ (BC) : 1 (AC) : : $\frac{W}{2n}:\frac{W}{2n.\overline{n-1}}=$ the weight of AC reduced to B. Again; as $n-1:1::x:\frac{x}{n-1}$ = the weight of x reduced to B. Hence $\frac{W}{2n.\overline{n-1}}+\frac{x}{n-1}$ is that weight, which if applied at B, would precisely balance the end AC, together with the weight x.

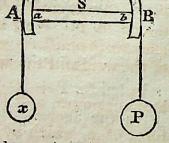
Hence $P+\frac{\overline{n-1}.W}{2n}-\frac{W}{2n.\overline{n-1}}-\frac{x}{n-1}$ will be the motive force or moving power. Then again, when the bodies are in motion, gW is the p' of the whole beam acting at B: and $\frac{x}{n-1}$, the value of x when reduced to B, it follows that $P+gw+\frac{x}{n-1}$ is the whole mass compared at B with respect to angular velocity. Hence $\dfrac{P+\frac{\overline{n-1}.W}{2n}-\frac{W}{2n.\overline{n-1}}-\frac{x}{n-1}}{P\times gw+\frac{x}{n-1}}$ is the accelerative force at B;—or the accelerative force of P;—or of x reduced to B. Then as $\overline{n-1}:1::\dfrac{P+\frac{\overline{n-1}.W}{2n}-\frac{W}{2n.\overline{n-1}}-}{P+gW+\frac{x}{n-1}}$ $\frac{x}{n-1}:\dfrac{P+\frac{\overline{n-1}.W}{2n}-\frac{W}{2n.\overline{n-1}}-\frac{x}{n-1}}{\overline{n-1}.P+\overline{n-1}.gW+x}$ the accelerative force of x suspended at A: which, by putting q for $\frac{\overline{n-1}.W}{2n}-\frac{W}{2n.\overline{n-1}}$, and t for $\overline{n-1}.\ P+\overline{n-1}.gW$, will be expressed by $\frac{\overline{n-1}.q-x}{\overline{n-1}.t+\overline{n-1}.x}$: and therefore the motive force, or momentum of x will be $\frac{\overline{n-1}.qx-x^2}{\overline{n-1}.t+\overline{n-1}.x}$, whose fluxion being equal to nothing, we have $\overline{\overline{n-1}.q\dot{x}-2x\dot{x}}\times\overline{\overline{n-1}.t+\overline{n-1}.x}-\overline{n-1}.\dot{x}\times\overline{\overline{n-1}.qx-x^2}=o$, and $x=\sqrt{t^2+\overline{n-1}.q}-t$, a general expression, when the shorter end is unity, and the whole length of the beam, any whole number. When n is 2, so that the arms are equal, then $x=\frac{\sqrt{W^2+9PW+18P^2}-W-3P}{3}$ as in the last.

PROB. 14. If the two arms be of any given length whatever, the shorter being expounded by a, and the longer by b; and their weights by c and d respectively: then if P as in the former case be applied to act as a power at B; it is required to determine the value of x in terms of a and b, in case of a maximum.

Now by Problem 7, Cor. $\frac{a^3+b^3}{3ab^2+3b^3}\times\overline{c+d}$ will express the p' of the whole beam reduced to B. Hence $P+\frac{a^3+b^3}{3ab^2+3b^3}\times\overline{c+d}+\frac{ax}{b}$, will express the mass when reduced to B, as to angular velocity. Then since $\frac{c}{2}$ is the weight of the shorter end reduced to A; $\frac{ac}{2b}$ is the weight which applied at B, would balance the shorter end. Therefore $\frac{ac}{2b}+\frac{ax}{b}$ applied at B, would sustain the shorter end, together with the weight x, *in equilibrio*. Hence $P+\frac{d}{2}-\frac{ac}{2b}-\frac{ax}{b}$ is the moving power. And therefore $\frac{P+\frac{d}{2}-\frac{ac}{2b}-\frac{ax}{b}}{P+\frac{a^3+b^3}{3ab^2+3b^3}\times\overline{c+d}-\frac{ax}{b}}$ is the accelerative force of P, or of x reduced to B, and $\frac{aP+\frac{ad}{2}-\frac{a^2c}{2b}-\frac{a^2x}{b}}{bP+\frac{a^3+b^3}{3ab+3b^2}\overline{c+d}+ax}$ is the accelerative force of x suspended at A: which, by substituting q for $aP+\frac{ad}{2}-\frac{a^2c}{2b}$, and t for $bP+\frac{a^3+b^3}{3ab+3b^2}\times\overline{c+d}$, becomes $\frac{qb-a^2x}{tb+abx}$: Hence $\frac{qbx-a^2x^2}{tb+abx}$ is the motive force, whose fluxion being equal to o, we have $\overline{qb\dot{x}-2ax\dot{x}}\times\overline{tb+abx}-abx\times\overline{qbx-a^2x^2}=o$, and $x=\frac{1}{a}\sqrt{\frac{at^2+bqt}{a}}-\frac{t}{a}$. Now if a be unity, then $x=\sqrt{t^2+bqt}-t$, the same as in the last Problem, when $n-1$ will be equal b.

Note. If in the accelerative force of P, q be substituted for $P+\frac{d}{2}-\frac{ac}{2b}$, and t for $P+\frac{a^3+b^3}{3ab^2+3b^3}.\overline{c+d}$ then the accelerative force of x is $\frac{abq-a^2x}{b^2t+abx}$: and its momentum $\frac{abqx-a^2x^2}{b^2t+abx}$, from whence $x=\frac{b}{a}\sqrt{t^2+tq}-\frac{b}{a}t$, and in the preceding problem, if q be put for $P+\frac{\overline{n-1}.W}{2n}-\frac{W}{2n.\overline{n-1}}$, and t for $P+gW$, in the accelerative force of P, and proceeding to find the accelerative force of x, &c. then $x=\overline{n-1}.\sqrt{t^2+tq}-\overline{n-1}.t$.

PROB. 15. LET ABC be a solid wheel of uniform thickness and density, revolving on its center S: and let its weight be W, and if P be a weight applied as a power, suspended to a line passing freely over the wheel, and to which line is fixed the weight x at the opposite end. The value of x is required, in case of a maximum.

SINCE the weight and power are equally distant from the center of motion, $P-x$ will be the moving power: and by Problem 8, $\frac{1}{2}W$ is the p' of the wheel. Hence $P+\frac{1}{2}W+x$ is the mass to be moved, as to angular velocity. Then will $\frac{P-x}{P+\frac{1}{2}W+x}$ be the accelerative force and $\frac{Px-x^2}{P+\frac{1}{2}W+x}$ the motive force of x, whose fluxion being equal to nothing, we have $P^2\dot{x}+\frac{1}{2}PW\dot{x}-2PW\dot{x}-Wx\dot{x}-x^2\dot{x}=0$ and $x=\sqrt{W^2+6PW+8P^2}-2P-W$.

PROB. 16. LET A a, B b, be two circular ends, fixed to the beam $a\,b$, these ends being of equal thickness as well as the beam. Let the weight of both the former together be W', and that of the latter w: and let the beam move on its center S.—Then if P be a given weight, acting as a power at B, it is required to determine the weight x suspended at the other end under the circumstances of a maximum.

Now if $SB=R$ and $sb=r$, then by Problem 10, the p' of the beam and heads, reduced to B, will be $\frac{hW'}{2}+\frac{r^2w}{3R^2}$, where $h=\frac{R^2}{R^2-r^2}$. And since the beam

and

and heads are suspended in the common center of gravity, $P-x$ will be the moving power, and $P+\frac{bw'}{2}+\frac{r^2w}{3R^2}+x$ the sum of all the mass after being in motion. Hence $\frac{P-x}{P+\frac{bw'}{2}+\frac{r^2w}{3R}+x}$ is the accelerative, and $\frac{Px-x^2}{P+\frac{bw'}{2}+\frac{r^2w}{3R}+x'}$ the motive force of x, equal $\frac{Px-x^2}{t+x}$, by putting $t=P+\frac{bw'}{2}+\frac{r^2w}{3R}$, and by taking its fluxion equal nothing, $x=\sqrt{t^2+tP}+t$.

PROB. 17. To determine x under the circumstances of a maximum, when the two circular ends are braced to the main beam ab, by the braces v, whose weight altogether is $2w'$.

THEN, by Problem 11, the p' of two of the vs at one end, reduced to B, is $\frac{v^2+3.\overline{r-a}|^2+6.\overline{ar-a^2}}{3v^2+3.\overline{r-a}|^2+6.\overline{ar-a^2}}+\frac{r^2w'}{R^2}=\frac{kr^2w}{R^2}$ by putting $k=\frac{v^2+3.\overline{r-a}|^2+6.\overline{ar-a^2}}{3v^2+3.\overline{r-a}|^2+6.\overline{ar-a^2}}$: and where $se=a$. Hence the p' for all the braces reduced to B, will be $\frac{2kr^2w'}{R^2}$, and by the same problem $\frac{bw'}{2}+\frac{r^2w}{3R^2}+\frac{2kr^2w'}{R^2}$ will be the p' of the whole beam, heads and braces, reduced to B. Now since the ends are *in equilibrio*, exclusive of the weight, $P-x$ will be the

moving power, and $\frac{Px-x^2}{P+\frac{bw'}{2}+\frac{r^2w}{3R^2}+\frac{2kr^2w'}{R^2}}$ is the motive force of x, which by putting $P+\frac{bw'}{2}+\frac{r^2w}{3R^2}+\frac{2kr^2w'}{R^2}=t$, becomes $\frac{Px-x^2}{r+x}$, and by making its fluxion equal to nothing, we shall have $x=\sqrt{t^2+tP}-t$, as in the former case. And this form will always obtain for all beams moving on their centers, after determining the value of p', and substituting t for the known terms in the denomination.

PROB. 18.

PROB. 18. LET ABD be a solid wheel, whose weight is W, and CC be an axle, but whose weight is so small, compared with that of the wheel, as not to be regarded. Then if P, as a power, be suspended to a line passing round the circumference of the wheel, whose radius call b; and x a weight to be raised suspended to a line passing round the axle, whose radius let be a: it is required to determine x, so that its effect may be a maximum.

SINCE W is the weight of the wheel, $\frac{1}{2}$ W is the *p* of the whole, acting at B, when in motion by Problem 8; and $\frac{ax}{b}$ is the value of x reduced to B. Therefore $P + \frac{1}{2}W + \frac{ax}{b}$ is the mass to be moved, after x is overcome by P: and $P - \frac{ax}{b}$ will be the moving power. Hence $\dfrac{P - \frac{ax}{b}}{P + \frac{1}{2}W + \frac{ax}{b}}$ is the accelerative force of $P = \frac{Pb - ax}{tb + ax}$, by putting $t = P + \frac{1}{2}W$. Then as $b : a :: \frac{Pb - ax}{tb + ax} : \frac{abP - a^2x}{tb^2 + bax}$ = the accelerative force of x, and therefore $\frac{abPx - a^2x^2}{tb^2 + bax}$ its motive force when suspended at C, which by making its fluxion equal to nothing, we shall obtain $x = \frac{b}{a}\sqrt{t^2 + tP} - \frac{b}{a}t = \frac{b}{a} \cdot \frac{\sqrt{W^2 + 6PW + 8P^2} - 2P - W}{2} = \sqrt{\frac{W^2 + 6PW + 8P^2}{2}} \frac{- 2P - W}{}$, when a and b become equal the same as in Problem 15.

PROB. 19. LET the wheel and axle be as in the last, with this difference, that the weight (w) of the axle projecting on each side the wheel, be considered.

THEN

THEN $\frac{1}{2}$ W is the p' of the wheel at B, to the center S, (for we shall suppose the part of the axle which passes through the wheel to be of the same density with the wheel;) and $\frac{1}{2}\, w$ the p' of the axle at C, and which, reduced to B, will be $\frac{a^2 w}{2b^2}$. Hence $\frac{b^2\mathrm{W} + a^2 w}{2b^2}$ is the p' of the wheel and axle together, at B. Then will $\mathrm{P} + \frac{b^2\mathrm{W} + a^2 w}{2b^2} + \frac{ax}{b}$ express the mass after being in motion: and $\mathrm{P} - \frac{ax}{b}$ as in the former case, being the moving power, by putting $t = \mathrm{P} + \frac{b^2\mathrm{W} + a^2 w}{2b^2}$, and proceeding as in the former case, we shall have $x = \frac{b}{a}\sqrt{t^2 + t\mathrm{P}} - \frac{b}{a}\,.\,t$; or by restoring the value of t,

$$x = \frac{b}{a}\sqrt{\frac{\overline{2b^2\mathrm{P} + b^2\mathrm{W} + a^2 w}|^2 + \overline{2b^2\mathrm{P} + b^2\mathrm{W} + a^2 w}\,2b^2\mathrm{P}}{2ab}} - \frac{2b^2\mathrm{P} + b^2\mathrm{W} + a^2 w}{2ab}.$$

SCHOLIUM. These problems comprehend all the cases that can be of general use in combining the lever with the wheel and axle; or in their separate application, when the power is acted on by gravity, and whose motion is uniformly accelerated, the same as that of bodies falling freely through any given space. And since, in the preceding Problems, gravity, or the space which a body falls freely through in the first second of time, is considered as unity, it follows that the accelerative force of x in all these cases being multiplied by $16\frac{1}{12}$ feet, (or what may be the measure in any particular latitude,) will give the space in feet that x would pass through in the first second of time, and from which the space which would be passed over in any other time may be computed, since those spaces are as the squares of the times in which they would be passed over from the beginning. It is also easy to compute the velocity of x after passing through a given space in any given time, for that velocity will be in the subduplicate ratio of the accelerative force: and hence another maximum may be determined, viz. the greatest possible effect of x, after passing through a *given space*. For if the square root of the accelerative force be multiplied by x, the product will be *as* the momentum of x for any space passed

over. Or if the velocity of x, after having passed through any space in any given time, T be multiplied by x, then that product will evidently be the momentum of x, after having passed through that space: and therefore, by the well known method of fluxions, the value of x may be obtained under the circumstances of a maximum: and this will apply to all the foregoing cases. But to select one of the most useful, let it be that in Prob. 17, where the lever moves on its center of gravity, which it is generally made to do when a power is applied at one end to raise a weight at the other to a certain height, and then return to repeat its stroke, and so continue by the alternate acting and ceasing of the power. Now, in the case alluded to, the accelerative force of x is as $\frac{P-x}{t+x}$, therefore $x\sqrt{\frac{P-x}{t+x}}$ will be as the momentum of x after being urged by the force by which it would be carried through a space, that should be to the space a body would be carried through by gravity in the same time, as $\frac{P-x}{t+x}$ to unity. Hence, by making the fluxion of $x\sqrt{\frac{P-x}{t+x}}$ equal to nothing, we shall have $\overline{2P\dot{x}-3\dot{x}^2 x} \times \overline{t-x} - \dot{x} \times \overline{Px^2-x^3} = 0$, and therefore $x = \sqrt{\frac{P^2+10Pt+9t^2}{4}} + \frac{P-3t}{4}$. Or if the velocity of x, after having passed through any space in any given time, T be multiplied by x, the momentum is obtained at the end of that time, let the space passed over be what it will. Now in the above case $\frac{P-x}{t+x} \times 16\frac{1}{12}$ feet, is the space which x would pass through in the first second of time: hence as $1''^2 : T^2 :: \frac{P-x}{t+x} \times 16\frac{1}{12} : \frac{\overline{P-x}.T^2}{t+x} \times 16\frac{1}{12}$ feet, equal to the space that x would pass over in the time T; therefore $\sqrt{\frac{\overline{P-x}.T^2}{t+x} \times 16\frac{1}{12}}$ is the velocity at the end of that time, and $x\sqrt{\frac{\overline{P-x}.T^2}{t+x} \times 16\frac{1}{12}} = T\sqrt{16\frac{1}{12}} \times \sqrt{\frac{Px^2-x^3}{t+x}}$ is the momentum, which, by making the fluxion equal to nothing, will give x as before.

IT will be unnecessary to give examples of all the

foregoing cases, as it is easy to assign numbers for the given terms, and from thence compute the value of x. But as the 17th Prob. is the most complicated with respect to the p' so often mentioned, and because the lever there represented is nearly the form of those generally used in machines that act with a reciprocating motion, I will subjoin an example for determining the value of x, both after a *given time*, and after passing through a *given space*; and then proceed to compute the greatest possible effects of the steam engine, agreeable to the principles laid down in this theory.

EXAMPLE:—LET then the weight (w) of the great beam ab (see the figure in Problem 17) be ten cwt. its length ($2r$) equal twenty feet. The weight of the two circular ends (W') = two cwt. The weight of *all* the braces ($2w'$) = one cwt. their length (v) = five feet. Then let SB (R) be twelve feet; sd (a) = six feet, and therefore $r-a$ = four feet: and make P = ten cwt. Now $\frac{v^2+\overline{r-a}|^2\times 3+6\times\overline{ra-a^2}}{3v^2+\overline{r-a}|^2\times 3+6\times\overline{ra-a^2}}=\frac{217}{267}=\,8127$ $=k$, and $\frac{2kr^2w'}{R^2}=1,128$ the p' of all the braces reduced to B. Then again $\frac{R^2}{R^2-r^2}=3,273=h$, $\frac{bw'}{2}=$ $3,273$, $\frac{r^2w}{3R^2}=2,546$. Therefore we have $P+\frac{2kr^2w'}{R^2}+\frac{bw'}{2}+\frac{r^2w}{3R^2}+1694,7\text{lb.}=t$; and by substituting the value of t thus found, in the equation $\sqrt{t^2+tP}-t$, will give $x=442$lb. very nearly, when its effect is greatest after a *given time*, and if the values of t and P be put in the equation $\frac{\sqrt{P^2+10tP+9t^2}+P-3t}{4}$, we have $x=631,5$lb. when its effect is greatest after passing through a *given space*. Had the weight of the lever not been considered, x in the first case would have been 414,2, and in the second 618,04 nearly.

Now to compute the greatest effects of the steam engine on the principles here laid down, without entering into a minute description of that machine, let c be the diameter of the cylinder into which the steam is conveyed, and p the diameter of the pump. Then if a denote the weight of the atmosphere on

a circular inch, ac^2 will express the weight of the atmosphere on the piston of the cylinder, which is therefore the power of the engine, and answers to P in the former case. And by an easy computation, if f represent the depth of the pit in fathoms, it will be found that $2p^2f$ will nearly express the weight of the water in pounds, which is to be raised through a given space, by the power of the cylinder, and which therefore answers to x. Now in the usual theorems that have been deduced for ascertaining the different values of c, f, and p, ac^2 and $2p^2f$ have been made equal to each other, so that the weight and power must have been supposed *in equilibrio*, which is never the case. But let us allow the weight of water in the pump to be overcome by the superior weight of the atmosphere in the cylinder the moment the steam is condensed, and then the case becomes precisely the same as when the weight P is suspended at one end of the lever; and like that weight the atmosphere will descend with an accelerated motion, and raise the column of water at the opposite end.

Now since the value of P is here given in terms of c the diameter of the cylinder, it will be necessary to substitute another quantity for t in the general equations. Let then $\frac{2kr^2w'}{R^2} + \frac{bw'}{2} + \frac{r^2w}{3R^2}$ be equal d: then $P + d\ (ac^2 + d) = t$; and therefore the equations $\sqrt{t^2 + tP} - t$, and $\frac{\sqrt{P^2 + 10tP + 9t^2} + P - 3t}{4}$, become $\sqrt{2P^2 + 3Pd + d^2} - P - d$ and $\frac{\sqrt{20P^2 + 28Pd + 9d^2} - 3d - 2P}{4}$, respectively; and by putting $2p^2f$ for x, and ac^2 for P', we shall then have $2p^2f = \sqrt{2a^2c^4 + 3adc^2 + d^2} - ac^2 - d$ for a general equation when the effect is greatest after a *given time*, and $2p^2f = \frac{\sqrt{20a^2c^4 + 28adc^2 + 9d^2} - 2ac^2 - 3d}{4}$ when the effect is greatest after passing through a *given space*; and from which equations may be deduced the following values of c, p, and f, viz.

When

When the effect is a maximum in a *given time.*

$$1,\ c=\sqrt{\frac{(32p^4f^2+8p^2fd+d^2)^{\frac{1}{2}}+4fp^2-d}{2a}}$$

$$2,\ p=\sqrt{\frac{(2a^2c^4+3adc^2+d^2)^{\frac{1}{2}}-ac^2-d}{2f}}$$

$$3,\ f=\frac{\sqrt{2a^2c^4+3adc^2+d^2}-ac^2-d}{2p^2}$$

When the effect is a maximum after passing over a *given space.*

$$4,\ c=\sqrt{\frac{(20f^2p^4+8fdp^2+d^2)^{\frac{1}{2}}+fp^2-d}{2a}}$$

$$5,\ p=\sqrt{\frac{(20a^2c^4+28adc^2+9d^2)^{\frac{1}{2}}-2ac^2-3d}{8f}}$$

$$6,\ f=\frac{\sqrt{20a^2c^4+28adc^2+9d^2}-2ac^2-3d}{8p^2}$$

Now in the application of the above equations let the diameter of the cylinder (c) be equal 30 inches, and the depth (f) of the well be 27 fathoms; and $a=6$, and also d (t—P$=695$ very nearly, as before. Then if these values be put in the 2d equation, p will be equal 6,49 inches nearly, which by the common method must have been 10 inches. Then if ac^2 and $2p^2f$ be substituted for P and x in the expression for the accelerative force, we have $\frac{ac^2-2p^2f}{ac^2+d+2p^2f}\times 16\frac{1}{12}=6$ feet very nearly for the space through which the water would ascend in the first second of time. And if 6 feet be allowed for the length of one stroke of the pump, then the ascent of that stroke is performed in 1″ of time. Now the contents of a cylinder whose length is 6 feet, and diameter 6,49 inches is 8,43 gallons nearly, which is the greatest quantity possible that can be raised in 1″ of time by the pressure of the atmosphere on a circle of 30 inches in diameter. Then if the piston be made to return in the same time, 2″ will be the time of one entire stroke, which is at the rate of 30 in the minute, which multiplied by 8,43 gallons gives 253 gallons per minute, or 241 hogsheads in the hour.

If the above values of a, c, f and d be put in the 5th equation, we shall have $p=7,8$ inches nearly and $\frac{ac^2-2p^2f}{ac^2+d+2p^2f}\times 16\frac{1}{12}=3,55$ feet for the space which the water would ascend through in the first second of time, then as $3,55 : 1''^2 :: 6 : 1'',7=$ the square of the time

time in passing through 6 feet, hence $\sqrt{1'',7}=1',34$ nearly is the time, which if the piston return in the same time, will give 2″,68 for the time of one entire stroke, being at the rate of 22,4 nearly in the minute. Now a cylinder whose height is 6 feet, and diameter 7,8 inches contains 12,23 gallons, and this is the greatest possible quantity that can be raised through a space of 6 feet in 1″34 of time, by a cylindrical column of the atmosphere, whose diameter is 30 inches. Then 22,4×12.23 gives 274 gallons nearly in the minute, or 261 hogsheads in the hour, which is more by thirty-three hogsheads than what is computed by the common method, where the diameter of the pump would be ten inches. But by that method no accelerative force is allowed, except what must arise from some additional weight given to the steam piston: and it may not be improper to observe here, that if ten be put for p in the expression $\frac{ac^2-2p^2f}{ac^2+d+2p^2f}$, it will vanish, for then the power of the cylinder and the weight of the water are *in equilibrio*, and the accelerative force is equal to nothing.

If these two cases be compared with each other, in order to know which would be the most proper for obtaining the dimensions of the cylinder and pump, we must observe that in the first, where the effect is required to be a maximum in a *given time*, the velocity is much greater than in the other, and the time in passing over six feet consequently much less; and therefore, by giving the greater number of strokes in the hour, the effect is so much more interrupted by the returning of the pump piston, and of course the whole effect within that hour is diminished, and in fact is less than in the second case, as appears from the foregoing computations. But were the pump in the first case allowed to ascend till 1″,34 was elapsed (which is the time in the second) it would pass through the space of ten feet nearly, and in the course of the hour would raise 311 hogsheads, which is more by fifty hogsheads than in the maximum

When

imum for space, when *that space* is six feet. But the great velocity with which the machine must move, is a sufficient objection against the maximum in time; because however well proportioned the parts might be, the perpetual reciprocation, where the motion is very great, must tend to injure the whole apparatus; and on this account, the latter case is much to be preferred.

I HAVE said nothing of friction, because in the cases I have considered, it must be but trifling, except in the pistons; and I have not mentioned the chain and pump rods as separate quantities from ac^2 and $2p^2 f$, though, to be minutely correct, this ought to have been done; but as this part of the apparatus will act at both ends of the lever, and whose weight compared to those of the water, and the atmosphere, will be but small, no great error will arise from this neglect. And as my object has been to establish a general theory, upon principles that admit of further prosecution to any degree of accuracy, I feel less anxious as to these particulars.

VIII.

On the Religion *and* Literature *of the* BURMAS.

BY FRANCIS BUCHANAN, M. D.

IN the celebrated island of *Ceylon*, in the extensive empire of the *Burma* monarchs, and in the kingdoms of *Siam* and *Cambodia*, the prevailing religion is that of Bouddha, or Godama; and followers of the same doctrine are probably dispersed all over the populous and wide dominions of *China*, *Cochinchina*, *Japan*, and *Tonkin*. However absurd the tenets of this religion may be, yet, as influencing the conduct of so large a proportion of mankind, it becomes an object of great importance in the history of the human race. To those in particular who study the history and antiquities of *Hindustan*, a knowledge of the doctrine of Godama will, I doubt not, be highly curious; as I think that Mr. Chambers, the most judicious of our *Indian* antiquaries, has given very good reason for believing, that the worship of Bouddha once extended all over *India*, and was not rooted out by the *Brahmens* in the *Decan* so late as the ninth, or even as the twelfth century of the *Christian* æra*.

Nor will this opinion, of the late introduction of the superstition now prevailing in *Hindustan*, be contradicted by the almost singular remain of *Hindu* history; the only one which has escaped the destructive research of the cunning *Brahmen*: I mean the history of *Cashmere* presented to the Sultan Ackber on his first entrance into that kingdom. We are told † that the Sultan caused the book to be translated, and of the translation Abul Fazil has given an abridgement. This informs us, that when

Cashmere was freed from an inundation, by which it had been covered, a certain *Kushup* brought the *Brahmens* to inhabit the new land; that after a long time a general assembly of the inhabitants was called, who elected a man celebrated for his virtue to be their king; and that from thenceforward monarchy was established in that delightful region. The name of the first successor to this king, that is mentioned, is OWNGUND, who was contemporary with KISHEN. From OWNGUND to KOTADEVY, the last native ruler, this history reckons 159 princes; and KOTADEVY was succeeded by a *Mahommedan* prince SHUMSHEDDEEN in the year of the *Hegira* 742, or of our vulgar æra 1342. The history makes these 159 princes to have reigned an astonishing length of time: but we have no number of years assigned for the reign of any of the first fifty-three princes, nay, eighteen only of them are at all named: of the next fifty-three princes, we find one reigning 300 years, and the others on the whole an incredible length of time. In such a case the safest rule is to take the last three dynasties as a guide, and these give us fifty-two princes in 504 years and some months, which is not quite ten years to a reign, and that is as much as ought to be admitted among eastern dynasties, where oppression always paves the way for revolt, where the line of succession is not clearly defined, and where an old uncle in most cases supplants the infant nephew. On this supposition of ten years for a reign, OWNGUND and KISHEN will be placed in the year before MAHOMMED 870, or before CHRIST 248. Now the *Brahmens* taken to *Cashmere* by KUSHUP could not be the *Brahmen* sect of priests, as they cultivated the earth, and were the only inhabitants of the country: but they must have been one of the *Brachman* nations, several of whom, according to PLINY, were dispersed over *India**; and these again, I conjecture, are the same with the *Biamma* of the *Răhāns*, supposed

* Page 2?? of this volume.

posed by them to have been the first inhabitants of the earth*. That this must be the meaning of the history of *Cashmere*, seems plain: as we are told, Rajah JENNEH the forty-fifth prince, and who, according to my theory, must have lived about the year of CHRIST 202, "established in his reign the *Brahmeny* rites." His successor JELOWK, the most powerful of the princes of *Cashmere*, "tolerated the doctrine of BOWDH:" and in that delightful valley it was not till the reign of NERKH, the fifty-ninth prince, A. D. 342, "that the *Brahmens* got the better of the followers of BOWDH, and burned down their temples."

To such as have an opportunity, I would beg to recommend an enquiry into the religion of *Nepal*. In the account given of that country by father GIUSEPPE†, it is stated, that there are in it two religions. The most ancient, professed by a sect who call themselves *Baryesu*, and who, from several circumstances mentioned by the father, seem to be worshippers of BOUDDHA. The other religion, now the more common, is that of the *Brahmens* of *Hindustan*.

"IN *Narhoara*, the residence of the king of kings, "or of *Guzerat*, even after the *Mahommedan* inva-"sion in the eleventh century of our æra, we find it "mentioned in EDRISI, that the people continued "to worship BODDA‡."

IF the conjectures of Sir WILLIAM JONES, relative to the inscriptions found at *Mongheer*, and on the pillar at *Buddal* ||, be well founded, then the governing power on the banks of the *Ganges*, as late as about the time of the birth of CHRIST, was of the sect of BOUDDHA. The *Brahmens* indeed had then introduced themselves into *Hindustan*, and had obtained lands, and even the rank of prime minister to the great Rajah: but they had not persuaded him to change his religion; a change which when accom-

plished,

* Page 248 of this volume.
† *Asiatick* Researches, II, 309.
‡ RENNELL's Memoir, p. 229.
|| *Asiatick* Researches, I, 142.

plished, proved equally destructive to the prince, and to the people. However idle and ridiculous the legends and notions of the worshippers of BOUDDHA may be, they have been in a great measure adopted by the *Brahmens*, but with all their defects monstruously aggravated: rajahs and heroes are converted into gods, and impossibilities are heaped on improbabilities. No useful science have the *Brahmens* diffused among their followers; history they have totally abolished; morality they have depressed to the utmost; and the dignity and power of the altar they have erected on the ruins of the state, and the rights of the subject. Even the laws attributed to MENU, which, under the form in use among the *Burmas*, are not ill suited for the purpose of an absolute monarchy, under the hands of the *Brahmens* have become the most abominable, and degrading system of oppression, ever invented by the craft of designing men.

DURING my short stay in the *Burma* empire, aware of the interesting nature of the enquiry, I neglected no opportunity of making myself acquainted with the religious tenets of the *Răhāns*: but from a want of knowledge in the language I should have obtained a very superficial view, had not Captain SYMES given me the use of three treatises, which he procured from VINCENTIUS SANGERMANO, an *Italian* priest residing at *Rangoun*. The first was a Cosmography extracted by SANGERMANO from various *Burma* writings. The second was a translation of a small treatise, written by a late ZARADO or king's confessor, with an intention of converting the *Christians*. The third was a translation of the book of ordination. These three I have united into one connected account, translating them from the original *Latin*, and intermixing them throughout with such observations as my personal acquaintance with the subject, and my reading, have enabled me to collect. I regret exceedingly, that in my present situation I am not enabled to make the last more numerous, as I have

hardly

hardly any access to books: and I have to solicit the indulgence of the learned for errors, which may have happened in several of my quotations, as I have been sometimes obliged to rely on my memory.

I BEGIN with a translation of the

COSMOGRAPHIA BARMANA.

"OF the measures of magnitude, and time, com-
" monly used in the writings of the *Burmas*.

"I. THE *Burmas* conceive, that there are five
" species of atoms. The first is a fluid invisible to
" men; but visible to those superior beings called
" *Nat:* a fluid which pervades and penetrates all
" bodies. The second species of atoms are those
" very minute particles, which are seen floating in
" the air, when through any opening the sunbeams
" enter a chamber. The third species is that very
" subtile dust, which during the dry season, espe-
" cially in the months of *February* and *March*, is
" raised aloft by the feet of man or of cattle, or by
" the wheels of waggons. The fourth species con-
" sists of the grosser particles of the same dust,
" which on account of their weight do not fly through
" the air, but remain near the earth. The last and
" fifth species of atoms are those particles which
" fall to the ground, when letters are written with
" an iron style on palmira leaves: the manner of
" writing in use among these people. Now thirty-
" six of the first species of atoms make one of the
" second, thirty-six of the second one of the third,
" and so forth. Seven of the fifth or last species are
" equal in size to a louse of the human head, seven
" lice are equal to one grain of rice, seven grains of
" rice are equal to one inch, twelve inches to one
" palm, two palms to one cubit, seven cubits to
" one *ta*, twenty *ta* to one *usaba*, eight *usaba* to
" one *gaunt*, four *gaunt* to one *juzana*. The *juzana*
" contains six *Burma* leagues, and four *ratoen*. The

" four *ratoen* are equal to 400 *ta*, or 2,800 cubits*.
" Again, the *Burma* writings reckon twelve hairs
" equal to one grain of rice, four grains of rice equal
" to one finger, twelve fingers equal to one foot,
" and the common stature of a man is seven feet or
" four cubits."

THESE measures, it is to be observed, are not in use among the *Burmas*: but have been introduced from *India* along with their books.

" II. The time in which the forefinger, when
" drawn back from the thumb, will recover its pro-
" per position, is called *charasi*, which may be
" translated a second: ten *charasi* make one *pian*,
" six *pian* one *bizana*, or minute, sixty *bizana* one
" hour, sixty hours one day, thirty days one month,
" twelve months one year."

SUCH is the account of the *Burma* measurement of time given by the missionary: but it is by no means complete. More accurate divisions have taken place, in a great measure, I apprehend, owing to the introduction of the *Brahmens*. The *Răhāns* or priests of GODAMA being entirely prohibited from the study of astrology, and the people being much addicted to divination of all kinds, the *Brahmens* have taken advantage of their credulity, and all over *India* beyond the *Ganges* have established themselves in considerable numbers. We are not however to conceive, that they have any concern in the religion of these countries: they are merely employed about the courts, and in the houses of the great, as the *Chaldeans* were about the kings of *Persia*, as soothsayers and wise men. These *Brahmens* yearly compose

* THE *Burma* league is 7,000 cubits: accordingly the *juzana* contains 44,800 cubits, or is nearly twelve miles. The *yojana* of *Hindustan*, according to Sir WILLIAM JONES (*Asiatick* Researches, IV, 157) is four and a half G. miles. According to Mr. CHAMBERS (*Asiatick* Researches, I, 155) it is from nine to twelve miles.

pose almanacs, of which I brought several from *Amarapura*. Before an audience is given on solemn occasions, they perform incantations under the throne of the king, or of great men: they are consulted on all matters of importance, to determine the fortunate hour or season in which these ought to be undertaken: they bestow on their protectors, amulets, charms, and the like. By such means the *Brahmens* have rendered themselves of great importance in the *Burma* empire, and have procured many privileges, confirmed even by the written law of the kingdom. Their being mentioned in the *Damathat*, or code of laws commonly attributed to MENU, by no means however appears to me a clear proof that the *Brahmens* were introduced into the *Burma* kingdom as early as that code: for we are told in the preface, that although all the laws are commonly attributed to MENU, yet that many alterations and additions have been made by different princes according to the exigencies of the times. For this and other reasons I am inclined to think that the introduction of the *Brahmens* into the *Burma* kingdom is a very recent event. I spoke with none of them who had not himself come from *Cussay* or *Arakan*, or who was not the first in descent from such as had come from those countries: and they all either were, or affected to be, very ignorant of the country. Besides, these laws of MENU were introduced from *Ceylon*, a country of which the indigenous inhabitants never have adopted the religion of the *Brahmens*.

THE *Burmas*, in whatever manner they may have obtained it, have the knowledge of a solar year, consisting of 365 days, and commencing on the 18th of *April*. Like most nations they also use a week of seven days, named after the planets. Sunday *Ta-nayn-ga-nue*, Monday *Ta-nayn-la*, Tuesday *Ayn-ga*, Wednesday *Boud-dha-hu*, Thursday *Kia-sa-ba-da*, Friday *Thouk-kia*; Saturday *Tha-na*.

THE

THE common year, however, of the *Burmas* is lunar; and by this year are regulated their holidays and festivals. It is composed of twelve months, which alternately consist of thirty and twenty-nine days, as follows;

Of 30 days. 1 *Ta-goo.* 3 *Na-miaung.* 5 *Wag-goun.* 7 *Sa-deen-giut.* 9 *Na-to.* 11 *Ta-bu-dua.*
Of 29 days. 2 *Kassoun.* 4 *Wa-goo.* 6 *Ta-da-lay.* 8 *Ta-zaung-mo.* 10 *Pya-zo.* 12 *Ta-boun.*

THIS being eleven days shorter than their solar year, in order to make the beginning of *Ta-goo* coincide with our 18th of *April*, the first day of their solar year, the *Burmas* every third year add an intercallary moon. This seems to have been the extent of chronological science in *Hindustan*, during the prevalence of the doctrine of BOUDDHA, as the *Rahans* will go no farther. But it was soon discovered by the *Brahmens*, that this contrivance would not make the commencements of the lunar and solar years coincide. They therefore wish from time to time to introduce other intercallary moons, in order to make the festivals occur at the proper season. The present king, who is said to be a studious and intelligent prince, was convinced of the propriety of the *Brahmens* advice, and persuaded the *Rahans* of the capital to add an intercallary moon during the year we were there. He had not however the same success in the more distant provinces; for although very strong measures were taken at *Rangoun*, such as ordering the people for some days not to supply the *Rahans* with provisions, yet in the end the obstinacy of the clergy prevailed, and they celebrated a great festival a month earlier at *Rangoun*, than was done at *Amarapura*. To this obstinacy the *Rahans* were probably in a great measure instigated by a jealousy, which they not without reason entertain against such dangerous intruders as the *Brahmens*; and they were encouraged to persist by the ignorance of those about the king. Of this ignorance his majesty was very sensible, and was extremely desirous of procuring from *Bengal* some learned *Brahmens* and proper books. None of those

I saw

I saw in the empire could read *Sanscrit*, and all their books were in the common dialect of *Bengal*.

THE 1st of *October* 1795, was at *Amarapura Kiasabada* the 19th of *Sadeengiut*, in the year of the *Burma* æra 1157; so that the reckoning, at that place at least, agreed very well with the solar year: but I observed that the *Burmas* in general, if not always, antedated by one day the four phases of the moon, which are their common holidays. I did not however learn, whether this proceeded from their being unable to ascertain the true time of the change of the moon, or if it was only an occasional circumstance, arising from some farther contrivance used to bring the solar and lunar years to coincide. In the common reckoning of time the *Burmas* divide the moon into two parts, the light and the dark moon: the first containing the days during which the moon is on the increase, and the second, those in which she is in the wane. Thus for instance, the 14th of *Sadeengiut* is called the 14th of the light moon *Sadeengiut*: but the 16th is called the 1st of the dark moon *Sadeengiut*.

WHENCE the *Burmas* date their æra I could not from them learn. JOANNES MOSES, *Akunwun* or collector of the land tax for the province of *Pegu*, the most intelligent man with whom we conversed, did not seem to know. He said that whenever the king thought the years of the æra too many, he changed it. The fact however, I believe, is, that this æra commencing in our year 638 is that used by the astronomers of *Siam*, and from them, as a more polished nation, it has passed to the *Burmas*, whose pride hindered them from acknowledging the truth*.

HAVING mentioned the fondness of these people for divination, I think no place will suit better than this, to introduce what I observed among them on that

* Loubere du Royaume de Siam II. 102.

that subject; for they consider it as the most useful and noble of sciences. We are not however to believe, that it is always used from ignorance. I am persuaded, that, like the augurs among the *Romans*, the *Brahmens* are often called upon for political purposes. When pressed to dispatch business, which the government wish to defer, the easiest way of procuring delay is for the *Brahmen* to mention a distant day as the favourable time: or when insulted by a nation of whom they are afraid, the minds of the people can easily be quieted, by a distant time being found propitious for revenge. Although I am convinced that political advantage is thus taken of the art, yet there can be no doubt, but that the greater part, even of the best informed among the people, are firmly persuaded of its existence.

No person will commence the building of a house, a journey, or the most trifling undertaking, without consulting some man of skill to find a fortunate day or hour. *Friday* is a most unlucky day, on which no business must be commenced. I saw several men of some rank, who had got from the king small boxes of *theriac*, or of something like it, and which they pretended would render them invulnerable. I was often asked for medicines, that would render the body impenetrable to a sword or musket ball, and on answering that I knew of none such, my medical skill was held in very low estimation. Indeed every *Burma* doctor has at the end of his book some charms, and what are called magical squares of figures, which he copies, and gives to be worn by his patients. And although these squares are all of uneven numbers, and consequently of the easiest construction, yet the ignorant multitude repose great confidence in their virtue. Some men whom we saw, had small bits of gold or jewels introduced under the skin of their arms, in order to render themselves invulnerable: and the tatooing on the legs and thighs of the *Burma* men they not only think ornamental, but a preservative against the bite of snakes. Almost every man of

any

any education pretends to a skill in cheiromancy, or the foretelling of a person's fortune by looking at the palms of his hands. Prophecies and dreams are also in great credit among the *Burmas*, as among all rude and ignorant nations. We were informed that a prophecy having lately been current, foretelling that *Pegu* would again be the seat of government, the king was thrown into considerable anxiety, and thinking to elude the prophecy, had sent orders to the *Myoowun* (or governor of the province) of *Haynthawade*, to remove the seat of his government from *Rangoun* to *Pegu* then in ruins. The late *Myoowun* was so attached to *Rangoun*, that he always found some excuse for delaying the execution of the order: but while we were in the *Burma* empire, his successor was busily employed in rebuilding *Pegu*, and having made considerable progress, had taken up his residence in that city. Nor did he appear to be more exempt from such credulity than his master. We were told, when at *Pegu*, that he was often employed in search of a hidden treasure, in consequence of some directions he had received in a dream: and that he often went into the woods to look for a temple, which, it was alleged, had the power of rendering itself visible or invisible. All good people are in consternation on account of certain robbers, who by a power in magic are supposed able to change themselves into tigers, or other wild beasts, and thus without a danger of detection can commit their nocturnal spoils. The grand art of astrology, however, seems to be chiefly practised, and understood by the *Brahmens*. Yet, while at *Arammattana* or *Pougan*, I procured a treatise on this subject written in the *Burma* language: which, with all the other manuscripts I brought from the country, are now in the possession of Sir JOHN MURRAY, at whose request I made the collection. However great the proficiency of the *Brahmens* in astrology may be, I was informed by my friend the Missionary, that they were very ignorant in astronomy.

Although they sometimes attempt to calculate

eclipses, yet they pretend not to ascertain either the hour of their commencement, or the extent of the obscuration. That his account was just, I make no doubt; as an eclipse of the moon happened during our stay at *Amarapura*, which had eluded their science, and which they attempted to discredit. It would indeed appear from a treatise of Mr. SAMUEL DAVIS*, that the time of the full moon, and the duration of the eclipse, found by the rules given in the *Surya Siddhanta*, differ considerably from the truth; and that although the rules given in the *Siddhanta Rahasya*, and other more modern books, make a nearer approach, yet that they are far from being correct; so that even the *Brahmens* of *Hindustan* are not much farther advanced than those of *Amarapura*, notwithstanding the improvements they have introduced from time to time, perhaps as they were able gradually to procure a little better information from their conquerors, *Mohammedans* and *Christians* †.

AFTER this long digression I shall return to the Cosmographia

" *OF THE UNIVERSE.*"

" THE Universe is called by the *Burmas*, *Logha*,
" which signifies successive destruction and repro-
" duction: because it is conceived, as we shall af-
" terwards mention, that the Universe, after it has
" been destroyed either by fire, water, or wind, is
" again of itself restored to its ancient form. Our
" earth the *Burmas* do not, like us, conceive to be
" spherical: but they suppose it to be a circular
" plane elevated somewhat in the center: so that
" the e is every where from the center to the cir-
" cumference

* *Asiatick Res.* II. 285.

† I have heard it reported, that the Royal Oak has now found its way into some of the oldest *Brahmenical* treatises on the constellations. The greater part of *Bengal* manuscripts, owing to the badness of the paper, require to be copied at least once in ten years, as they will, in that climate, preserve no longer; and every copyist, it is to be suspected, adds to old books whatever discoveries he makes, relinquishing his immediate reputation for [illegible], in order to promote [illegible]

" cumference some declivity. This earth is en-
" tirely surrounded by a chain of very lofty moun-
" tains called *Zetchiavala.** From the surface of
" the sea these hills extend each way, up and down,
" 82,000 *juzana.* The diameter of this earth is
" 1,203,400 *juzana;* its circumference is three times
" its diameter; and its thickness 240,000 *juzana.*
" The half of this depth is dust. The remaining and
" lower half consists of a compact rock, which is
" named *Sila Pathavy.* This immense body of dust
" and rock is supported by a double thickness of
" water, and that again by twice its thickness of
" air; below which the *Burmas* suppose to be a va-
" cuum. Besides this earth of ours, it is imagined
" that there are of the same form 10,100,000 others,
" which mutually touch in three points, forming
" between them a similar number of equilateral
" spaces, which on account of the sun's rays not
" reaching them, are filled with water intensely cold.
" The depth of these 10,100,000 triangular spaces
" is 84,000 *juzana,* and each of their sides is 3,000
" *juzana* in length†.

" II. In the middle of the most elevated part of
" our earth, the *Burma* writings place *Mienmo,* the
" largest of all mountains‡. It is elevated above
" the

* The *Brahmens,* in place of the mountain *Zetchiavala,* suppose the world to be surrounded by an immense serpent, which they name *Ananda* or *Vasughi.* *Paulini* a. s. Bartholomæo *Musei Borgiani Codices mss: illustrati Romæ* 1793. page 211.

† This shews the very crude notions of geometry which must have prevailed in *Hindustan,* when this doctrine was invented.

‡ *Mienmo* is, I believe, a *Burma* word, signifying the mountain of vision. It seems to be the same with the *Meru Paravada* of the *Brahmens,* which are perhaps *Sanscrit* or *Pali* words of the same meaning. The ingenious etymologist Paulinus *(Mus. Borg.* pag: 281 *et seq. et passim ubique),* in his description of a figure of the *Thibet* cosmography, has made wonderful confusion by supposing that the imaginary *Meru* or *Mienmo* is the same with the snowy *Hemavunta* or *Himaleh,* which actually exists. In fact, the cosmographical table of *Thibet* will be found a rude attempt to delineate the general cosmography here delivered, except that it represents *Mienmo,* with the seven surrounding chains of hills, and the intervening *Sida,* as square; whereas they are by the *Rahans* described as being circular.

" the surface of the sea 84,000 *juzana*, and descends
" as much below. If we take a large cask, and im-
" merse one half of it under water, with one of the
" ends uppermost, we shall have an exact repre-
" sentation of the figure, situation, and position of
" *Mienmo*. The diameter of the superior plane sur-
" face of this mountain is 48,000 *juzana*. This im-
" mense bulk is supported on three feet, which are
" three carbuncles, each 3,000 *juzana* high, and
" which are connected to *Sila Pathavy*. The
" eastern face of *Mienmo* is silver, the western glass,
" the northern gold, and the southern face is pale-
" coloured carbuncle. Seven chains of hills, like
" so many belts, every where surround the king of
" mountains *Mienmo*: and in the intervals between
" these chains are seven rivers called *Sida**, because
" their white waters are limpid like crystal, and un-
" able from their lightness to support even the
" smallest feather. The height of these hills, and
" the width and depth of these rivers, decrease, as
" they are more distant from *Mienmo*, and that in a
" duplicate proportion: thus the first range of hills
" which is called *Jugando*, is in height 84,000 *ju-*
" *zana*; and the first great *Sida* or river, which
" runs between *Mienmo* and *Jugando*, is of the same
" width and depth: the second chain of hills is
" 42,000 *juzana* high; and the second *Sida* of equal
" width and depth: and thus the others diminish
" in a similar proportion."

" III. OPPOSITE to the four cardinal parts of
" *Mienmo*, are placed in the middle of the ocean,
" four great islands, the habitations of men, and of
" other animals. The eastern island named *Piop-*
" *pavideha*, is shaped like the moon in her quarters,
" and is in circumference 21,000 *juzana*. The
" western island, which is like the full moon, is
" named *Amaragoga*, and has a similar circum-
" ference.

* *Sida* in the dialect of *Arakan* is applied to the sea, which the
Burmas name *Pan-lay*: but I imagine that sea would be a more pro-
[illegible] of *Sida* than the word river used by the missionary.

"ference. *Unchegru*, the northern island, is square,
"and its circumference is 24,000 *juzana*. Finally,
"the southern island, which we inhabit, and which
"is called *Zabudiba*, is shaped like a trapezium,
"and is 30,000 *juzana* in circumference. These
"names are taken from certain great trees, which
"are the sacred insignia of each particular island:
"thus, because the sacred tree of the southern island
"is *Zabu*, the island is named *Zabudiba*, or the
"island of the tree *Zabu*; *diba*, in the *Pali* language,
"signifying island*."

"IV. BESIDES these four large islands, the *Burma*
"writings allow 2000 of a smaller size, 500 belong-
"ing to each of the larger ones. All these small
"islands are of the same shape with that on which
"they depend. Except these, the *Burmas* admit of
"nothing but a vast and impassable ocean. They
"also say, that the four different faces of *Mienmo*
"communicate their respective colours, not only to
"the seas lying opposite to them, but also to the
"islands and their inhabitants. Thus, because the
"eastern face of *Mienmo* is silver, the eastern island
"and its inhabitants, its trees and rivers, with all the
"eastern sea as far as mount *Zetchiavala*, are white
"like milk. In a similar manner, the glass face on
"the west side of *Mienmo* communicates a green co-
"lour to the great western island, and to the 500 small
"islands by which it is surrounded, and also to all
"that part of the ocean which lies to the west of
"*Mienmo*. They speak in a similar manner of the
"two other parts; the northern and the southern:

 "and

*. This tree *zabu* is entirely the creature of fancy, there being no species of plant so called: but I observed that a kind of respect was paid by the *Burmas* to the *Bö-abĕ bayn* or *Ficus religiosa*. From the characters with which this name is written ဗောဓိ it is evidently a *Pali* or *Sanscrit* word, and the reverence paid to it has been introduced from *Hindustan*. It is said that GODAMA rested himself by leaning on it, at a time when he had been much fatigued. The attention paid to the tree seems therefore chiefly given, from its being considered as a relic of the GODAMA; but does not appear to be esteemed of much importance in the religious code, as it is not mentioned in the summary of religious duties which we shall afterwards detail

" and on this account the great ocean is divided
" into four seas; the white, the green, the yellow,
" and the brown.

" V. THE *Burmas* do not suppose the ocean to be
" every where of the same depth. The sea, lying
" between each of the large islands and its depend-
" ing small ones, has little depth, and is so smooth
" as to be passable with convenience in ships: but
" the seas interposed between the great islands, and
" also those which lie on one hand between *Mienmo*
" and the great islands, and on the other between
" them and *Zetchiavala*, have the enormous depth of
" 84,000 *juzana*. In these seas the waves rise to the
" height of sixty or seventy *juzana;* in them there
" are frequent and dreadful whirlpools, capable of
" swallowing up the largest ships; and monstrous
" and enormous fishes, 500 nay even a 1000 *ju-*
" *zana* in length. When these fishes simply move,
" they cause the water as it were to boil: but when
" they leap up with their whole bodies, they raise
" tempests extending from 500 to 800 *juzana*. These
" seas are therefore inaccessible to ships*. It is
" related in the *Burma* writings, that a *Kula (Eu-*
" *ropean)* ship, having ventured to penetrate into
" them, had been swallowed up: and hence it is
" concluded, that there can be no communication
" between the four great islands. The *Burmas* there-
" fore suppose, that the ships which arrive from
" *Europe*, in their kingdom, come from some of
" the small islands belonging to the great isle *Za-*
" *budiba:* and thence the *Europeans* are commonly
" called the inhabitants of the small islands." Although religion and ignorance induced the *Burmas*, on their first acquaintance with *Europeans*, to form such mean opinions of them; yet better information has corrected their error, and I always at *Amarapura* heard *Britain* mentioned by the name of *Pyee-gye*, or the great kingdom.

OF

* In the *Cosmogonia Indico-Tibetana*, given us by PAULINUS, we have a rude imitation of a ship passing between *Zabudiba* and one of its dependent small islands, in order, I suppose, to shew the interven-

OF BEINGS LIVING IN THE UNIVERSE, OF THEIR HAPPINESS AND MISERY, AND OF THE DURATION OF THEIR LIVES.

" VI. The *Burma* writings divide all living
" beings into three kinds: 1st, *Chama*, or generat-
" ing beings; 2d, *Rupa*, or beings which are mate-
" rial, but do not generate; and 3d, *Arupa*, or
" immaterial beings or spirits. These three kinds
" are again subdivided into thirty-one species, each
" of which has its proper *bon* or habitation. The
" first kind, or the *Chama*, contains eleven species,
" *bon*, or states of existence: seven of which are
" states of happiness, and four of misery, which
" last are called *Apé*. The first state of happy ex-
" istence contains men: the other six happy states
" are composed of *Nat*, or superior beings. The
" four *Apé* are infernal states, in which beings are
" punished for former crimes. The second kind of
" beings, the *Rupa*, have sixteen *bon* or habitations:
" and four belong to the *Arupa*, or beings desti-
" tute of body."

" VII. Before I proceed to give a topographi-
" cal description of these habitations, with an ac-
" count of the beings which they contain, it will
" be necessary to explain some collateral circum-
" stances.

" 1st, It is well known that the *Burma* writings
" admit of transmigration; but the notions con-
" tained in them on this subject differ from those
" commonly received; for it is the usual opinion,
" that the souls, which animate bodies, after the
" death of these bodies pass into others: On the
" contrary, the *Burma* writings alledge, that in
" death, whether of man, beast, or of any living
" being, (for they believe all living beings to pos-
" sess souls,) the soul perishes with the body, and
" they alledge, that after this dissolution, out of
" the same materials another being arises, which,
" according to the good or bad actions of the former
" life, becomes either a man or an animal, or a *Nat*,

"or a *Rupa*, &c. And they further alledge, that
"beings are continually revolving in these changes,
"for the duration of one or more worlds, until
"they have performed such actions as entitle them
"to *Nieban*, the most perfect of all states, con-
"sisting in a kind of annihilation, in which beings
"are free from change, misery, death, sickness,
"or old age."

FOR a further account of *Nieban* the reader may consult the treatise of the *Zarado* afterwards translated. Annihilation used in the text by my friend, and in general by the missionaries, when treating on this subject, is a very inaccurate term. *Nieban* implies the being exempted from all the miseries incident to humanity, but by no means annihilation. Neither does *Nieban* imply absorption into the divine essence; a doctrine common I believe to PLATO and the *Brahmens*, and probably borrowed from the *Magi*. The sect of GODAMA esteem the opinion of a divine being, who created the universe, to be highly impious. It might be supposed, that this doctrine of transmigration would, among the worshippers of GODAMA, prevent the belief in ghosts or apparitions of the dead, but I found this not to be the case. The death of some persons belonging to the *Chinese* embassy, who were lodged near us during our stay at *Amarapura*, produced great consternation among all the women and children in the neighbourhood; their ghosts being supposed more likely to be restless than those of the natives.

"*2dly*, THE *Burma* writings do not conceive one
"world, but an infinite number, one constantly
"succeeding another; so that when one is de-
"stroyed, another of the same form and structure
"arises, according to a certain general law, which
"they call *dammada*; and which may be interpreted
"fate. Which was the first world, and which will
"be the last, they do not pretend to know; nay
"they say, that even GODAMA did not obtain this

" knowledge. Hence however several of the *Burma*
" doctors conclude, that these worlds never had a
" beginning, and never will have an end: that is
" to say, that the successive destructions and re-
" productions of the world, resemble a great wheel,
" in which we can point out neither beginning nor
" end."

" VIII. Before we treat of the duration of
" life attributed to the above-mentioned beings, it
" will be necessary to give some idea of the wonder-
" ful duration which the *Burma* writings assign to
" one world. They say that the age of the men
" inhabiting this southern island has not always
" been the same with what it is at present, and that
" it will not continue to be the same: but that it
" is lengthened or shortened according to the gene-
" ral merit or demerit of mens' actions. The life of
" the first man, or of the first inhabitants of *Zabu-
" diba*, extended to one *Assenchii*. Now the *Assen-
" chii* is an infinite number of years, of which to
" give an idea, the *Burma* doctors say, that if for
" three years it should rain incessantly over the
" whole surface of this earth, which is 1,203,400
" *juzana* in diameter, the number of drops of rain
" falling in such a space and time, although far ex-
" ceeding human conception, would only equal the
" number of years contained in one *Assenchii*. Af-
" ter these first inhabitants, their children and grand-
" children had gradually and successively shorter
" lives, in proportion as they became less virtuous:
" and this gradual decrease continued till men came
" to live ten years only, the duration of the life of men
" in their greatest state of wickedness. The children
" of these, considering the cause of their parents
" short life, and dedicating themselves more to the
" practice of virtue, became worthy of living twenty
" years. Afterwards their children and grand-
" children, increasing gradually in the performance
" of good works, had their lives protracted to 30,
" 40, 80, 100, 1,000, 10,000 years, and finally
" came to live one *Assenchii*. Now this successive

"decrement in the duration of the life of man from "one *Assenchii* to ten years, followed by an in- "crease from ten years to one *Assenchii*, must take "place sixty-four times after the reproduction of a "world, before that world will be again destroyed. "In the present world eleven of these changes have "taken place, nor will it be destroyed till it has "passed through fifty-three more changes. The "time in which one of these successive decrements "and augmentations of ages take place, is called "*Andrakat;* sixty-four *Andrakat* make one *Assen-* "*chiekat;* four *Assenchiekat* make one *Mahakat.*"

"IX. LET us now consider the happiness and "misery of the different living beings; and the *bon* "or habitations which they possess. We shall "begin with the happy beings, and first of all with "man, the first happy species of these beings called "*Chama**.

"THE diameter of this southern island is 10,000 "*juzana.* If we substract 3,000 *juzana* of woods "and desarts, and 4,000 of water, which occupy "the surface of this island, there will remain 3,000 "*juzana,* the diameter of the *bon* or habitation of "men. The duration of the life, which men at "present enjoy, is reckoned somewhat long, when "it extends to eighty years. Amongst us some are "rich, others poor; some learned and of a quick "understanding, others ignorant and stupid; some "are oppressed with grief and cares, others free from "anxiety and fear pass their lives in tranquillity and "happiness; some are low and held in reproach, "others are honoured and raised to the rank of "princes, or of officers; some are deformed, others "are beautiful; and finally, some die soon, while "others enjoy long life. These different conditions "and states among men are bestowed on them by "GODAMA, according to the merit or demerit of "the actions performed by them in a former life: "but of this we shall afterwards have occasion to "treat more at length."

“ X. Let us now consider the opinions of the
“ *Burmas* concerning the inhabitants, or men of
“ the other three great islands. The life of the in-
“ habitants of *Pioppavideha*, and *Amaragoga*, is
“ not liable, like ours, to increase and diminution;
“ but always lasts for 500 years. The form of their
“ countenances resembles, respectively, that of the
“ islands they inhabit; that of the eastern islanders
“ being like the moon in her quarter, and that of
“ the western round like a full moon. These islanders
“ also differ from us in their stature; those of *Piop-*
“ *pavideha* being nine cubits high, and those of
“ *Amaragoga* being six. In their manners, agri-
“ culture, commerce, and arts, these islanders re-
“ semble us of *Zabudiba*. Each of the four great
“ islands has its peculiar sacred tree, which being
“ produced at the beginning of the world of its own
“ accord, and by the power of fate, will continue
“ as long as the world itself. The height of these
“ trees is said to be 100 *juzana*, and the branches
“ extend in a circle on every side to the distance of
“ fifty *juzana*; so that the whole circuit of each tree
“ is 300 *juzana*, and the trunk is eighteen *juzana*
“ in circumference.”

“ XI. The inhabitants of the northern island
“ differ totally from those of the others: for they
“ neither practise agriculture, commerce, nor any
“ other profession. There grows in their island a
“ tree called *Padeza-bayn*, on which, in place of
“ fruit, hang precious garments of every kind: so
“ that from these trees the inhabitants are supplied
“ with all manner of cloathing. Neither have the
“ inhabitants of *Unchegru* any need to cultivate the
“ ground; as the same *Padeza-bayn* produces a cer-
“ tain excellent kind of rice, which has no husk.
“ Some of this rice, when the natives are hungry,
“ they put on a certain kind of stone called *Zotrassa*,
“ which immediately of itself emits fire, and dresses
“ the rice: and as soon as this is done, the fire dies
“ away. Whilst these people are eating their rice,
“ various meats of the most exquisite flavour, ac-

"cording to the particular taste of each person, ap-
"pear on the leaves and branches of the *Padeza-*
"*bayn.* This food is of such a nature, substance,
"and nourishment, that what is prepared for one
"person, would abundantly serve many: and after
"being eat, it takes away all sensation of hunger for
"seven days. When the repast is finished, the re-
"mains of their own accord disappear. From such
"a diet the natives of *Unchegru* never suffer any
"sickness; nor have they any inconvenience from
"old age, but live for a thousand years happy and
"tranquil in continual vigour, always in their per-
"sons resembling youths of eighteen years.

"THE manner in which these islanders contract
"marriage, is remarkable. Women there are not
"subject to the common sexual infirmities, and bear
"their children without any pain. When their time
"comes, they bring forth their children in the streets,
"and there leave them. The children, though thus
"forsaken by their parents, do not die: for the
"passengers put the extremities of their fingers into
"the mouths of the infants, who from thence suck
"a most exquisite nectareous liquor, by which they
"are refreshed and nourished for seven days, in
"which time they become full grown. No one
"then knows his own relations; not only for the
"above-mentioned reason; but also because all the
"inhabitants of the northern island are of the same
"form and colour. Whenever therefore a man and
"woman struck with mutual love wish to contract
"marriage, they retire under the shade of a certain
"most agreeable kind of a tree. If they be not
"nearly related, this tree bends down its branches
"and leaves, covering them with a delightful bower,
"where they consummate their marriage: but if
"they be very nearly related, the tree neither bends
"down its branches nor leaves: and they then
"knowing their consanguinity immediately abstain
"from any farther connection. These islanders
"are not amorous: for they never perform the con-
"jugal rites more than ten times: many abstain
"from

"from them during their whole lives; and many, "after having performed them six or seven times, "become, as if it were, perfect men and holy, who "have overcome all their passions, and all the de- "sires of their minds. For these reasons in this "island no one weeps, no one grieves at the death "of another: but as soon as a person dies, the body "is deposited in a certain place, where very large "birds, destined by fate for that purpose, carry it "away to another part of the island, and there de- "vour it. Although these islanders are thirteen "cubits high, they are very handsome, especially the "women, who excel in softness, suppleness, and "elegance of limbs. They are of a golden colour, "of which, as we have said, the whole island parti- "cipates, from its being opposite to the golden side "of *Mienmo.*

"THIS northern island, besides, is of all others "the most agreeable. In it there is neither hot, "nor cold, nor rainy season, nor is there any in- "temperance in the air. It contains no ferocious "beasts, no serpents, nor poisonous insects, that "infest the life of man. Its happy inhabitants re- "quire no houses, but live their whole lives safe "and tranquil in the open air. Every where it "abounds with the most beautiful trees, of a golden "colour, from whence hang, in profusion and va- "riety, the most delicious fruits, and the sweetest "scented flowers. The same trees pour forth most "shining gums, which serve the natives for per- "fumed ointments. The whole island flows with "streams of sandal-wood water, in which the na- "tives sport and swim. But although these northern "islanders thus excel the others in happiness; they "are inferior to those of the south in courtesy, pru- "dence, and cunning." Cunning among all the worshippers of BOUDDHA is esteemed a great virtue; and I much suspect, from the practise, that the doctrine of the simple Pandits, as Sir W. JONES is pleased to call them, has not in this point tended to improve the morals of their *Hindu* converts.

XII.

"XII. The northern, eastern, and western-
"islanders, after death, do not pass into the supe-
"rior habitations of the *Nat*, nor into the inferior
"of the *Apé* or damned, as do the inhabitants of
"our southern island *Zabudiba;* but are constantly
"born anew, inhabitants of the same island to which
"they formerly belonged. And although this in
"some respects be desirable, especially to the inha-
"bitants of the northern island; yet, whoever is en-
"dowed with reason and judgment, say the *Burma*
"doctors, would not wish to become an inhabitant
"of the northern, in preference to the southern
"island: for it is in this last only that a person, by
"the merit of his good actions, can raise himself to
"the superior habitations of the *Nat*, or to that
"most perfect of all states called *Nieban*. Hence
"it is that, in the *Burma* scriptures, this southern
"island is called the *Ford* of *Nieban.*"

"XIII. After mankind, come the six ranks of
"*Nat* or genii, and their habitations, which are
"called:—1. *Zadumaharit*, 2. *Tavateinza*, 3. *Jama*,
"4. *Dussida*, 5. *Neinmanarati*, 6. *Paraneimmata-*
"*vassanti**; besides these there are the *Rupa* and
"*Arupa*. The *bon* or habitations of the *Nat* are
"thus disposed; in the plane commencing at the
"summit of *Jugando*, and thus extending from the
"middle of *Mienmo* to the mountains *Zetchiavala*
"which surround this earth, is the habitation of the
"first rank of *Nat*, called *Zadumaharit*. To this
"rank belong the sun, moon, planets, and stars,
"which, according to the *Burma* writings, are the
"palaces of certain *Nat* called *Zadumaharit*. Be-
"ginning at the summit of *Mienmo*, and extending
"from thence in a plane to *Zetchiavala*, is the ha-
"bitation of the second rank of *Nat* called *Tava-*
"*teinza*. Forty-two thousand *juzana* above the
"*Tavateinza*, is the habitation of the *Jama*: and above
"that, always at the same distance of 42,000 *juzana*
"from each other, are the habitations of the other
"three

* The *Brahmens*, into these six abodes of the *Nat*, have introduced

" three ranks of *Nat*. All these habitations are
" parallel planes extending to the perpendicular of
" *Zetchiavala*. Above the *bons* of the *Nat* are those
" of the sixteen *Rupa*, which are thus disposed:—
" Five hundred and fifty-eight thousand *juzana*
" above the highest habitation of the *Nat*, are three
" habitations of *Rupa*, lying in the same plane, in
" the form of an equilateral triangle; each habita-
" tion being distant from the others 558,000 *juzana*:
" the *Rupa*, that dwell here, are called the first
" *Zian*. At the same perpendicular distance of
" 558,000 *juzana*, are three other habitations of
" *Rupa*, in the same form and disposition; and the
" *Rupa* which occupy them, are called the second
" *Zian*. In a like manner, 558,000 *juzana* above
" these, lie three other habitations, whose inhabi-
" tants are called the third *Zian*. Above these also
" 558,000 *juzana*, lie, in the same plane, the two *bon*
" of the fourth *Zian*. The other five *bon* of the *Rupa*,
" are placed one above another, at the mutual
" distance of 558,000 *juzana*. And also, one above
" the other, and at the same distance, are disposed
" the four habitations of *Arupa*, or incorporeal be-
" ings. Such is the distance from the highest
" dwellings of these *Arupa* to this our earth, say the
" *Burma* doctors, that a rock thrown from it would
" take four years to reach the ground: but I doubt,
" says the missionary, if this be conformable to our
" observations on accelerated motion."

" XIV. LET us next relate the happiness, and
" length of life, of the first kind of *Nat* called *Za-*
" *dumaharit*. The government of this habitation is
" divided among four kings, or princes of the genii.
" The capital city of the first is situated to the east
" of *Mienmo*, on the summit of *Jugando*. It extends,
" in length and breadth, 1,000 *juzana*. When we
" speak of the capital of the *Nat Tavateinza*, we
" shall have an opportunity of describing the gates,
" ways, and other things belonging to this superb
" city; as they are the same in both. The palace of
" this king extends twenty-five *juzana* in every di-
rection.

" rection, and all its pillars, walls, and beams, are
" of silver. The capital of the second king of these
" *Nat* is to the north of *Mienmo*; that of the third
" to the west; and that of the fourth to the south.
" All these cities have the same shape and size with
" the first. In the whole of this habitation grows
" the *Padeza-bayn**, on which, in place of fruit,
" hang precious garments, the most exquisite viands,
" and whatever can afford delight to the *Nat*, either
" in ornament or in feasting. Every where in it
" are to be seen running streams, lakes, and the most
" pleasant gardens. On the whole, this habitation
" is filled with delights. These *Nat* live 500 of
" their years, which are equal to 9,000,000 of ours;
" their stature is half a *juzana*. In this habitation,
" as well as in those of the superior *Nat*, are males
" and females, who perform matrimonial duties in
" the same manner as mankind †; and here it is to
" be observed, that the beings of the superior habi-
" tations are not nourished at the breasts of their
" mothers, as happens on earth, but are born per-
" fect, as if they were fifteen years old. The *Nat* of
" this habitation have subject to them certain genii
" of an inferior rank, but also called *Nat*. These
" are giants, great birds, evil genii, dragons, and
" the like, which inhabit on the descent of mount
" *Jugando*. In this habitation also grows a great sa-
" cred tree, which, like those on the four great
" islands of the earth, will last as long as the world."

" XV. We have said, that to the habitation
" *Zadumaharit* belong the sun, moon, and stars,
" which are the palaces of those *Nat* destined by
" fate to give light to men, to divide the day from
" night, to distinguish years, seasons, and months,
" and to presage good or ill fortune to mankind.
" This therefore is the proper place to speak of
" *Burma* astronomy. The *Burma* writings mention
" eight planets, namely, the Sun, the Moon, Mer-
" cury, Venus, Mars, Jupiter, Saturn, and another
" one

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" one named *Rahu*, which is invisible *. The Sun,
" or palace of the *Nat* so called, is fifty *juzana* in
" diameter. This palace is within gold, and with-
" out crystal; and because gold and crystal are by
" nature hot, the rays of the sun always occasion
" heat. The Moon is the palace of the *Nat* so called,
" and is forty-nine *juzana* in diameter. Without,
" it is silver, and within carbuncle; and because
" silver and carbuncle are by nature cold, therefore
" the rays of the Moon are cold. Mars has a
" diameter of twelve *juzana*, Mercury of fifteen,
" Jupiter of seventeen, Venus of nineteen, and Sa-
" turn of thirteen; and their circumferences are
" triple their respective diameter †. The *Burmas*
" do not assign any measure to the fixed stars.
" They do not suppose, that the sun, moon, and
" stars, revolve round the earth; but that they re-
" volve round the great mountain *Mienmo* in a cir-
" cle, the plane of which is parallel to the earth.
" The stars they suppose are constant in their mo-
" tion, neither declining to the north, or south:
" but the sun, moon, and other planets, they con-
" ceive, as we do, to have a declination; and say
" that the sun goes from the north to the south,
" and on the contrary from the south to the north,
" always touching the twelve constellations, which
" we call the twelve signs of the Zodiac: and they
" allow, that, in the space of one year, the sun re-
" turns to the same place in the heavens from
" whence he had set out. This same revolution, which
" by the sun is performed in one year, is by the
" moon performed in one month. The *Burmas* di-
" vide

* An admirer of oriental literature would here difçover the *Georgium sidus*, and strip the industrious Herschel of his recent honours.

† From this we might infer that the *Burmas*, or ancient *Hindus*, had made such a progress in geometry, as to know that the circumference of a circle is to its diameter as three to one. But if we examine more accurately, we shall find their notions in this science quite absurd, (p. 175). Thus the diameter of the island *Zabudiba* is made 10,000 *juzana*: but they suppose, that three spaces, whose diameters are 4,000, 3,000, and 3,000; should be equal to the whole extent of the island, (p. 182). And they even suppose the circumference of *[illegible]*, which is a square, to be only three times its diameter.

" vide the year into three seasons, the hot, the
" rainy, and the cold: and in order to distinguish
" these seasons, although they believe the sun and
" moon decline by a daily motion, yet they suppose
" three roads in heaven; a road within, a road in the
" middle, and a road without. The inner road is
" nearest *Mienmo;* and when the sun enters it, the
" rainy season commences; when he enters the
" middle road, the hot season commences; and when
" he enters the outer road, the cold begins. By
" these three roads, which are distant from each
" other 39,093 *juzana*, that immense space, which
" lies between *Mienmo* and *Zetchiavala*, is divided
" into four great zones. The inner road corresponds
" to our summer solstice, the middle to our equi-
" nox, and the outer to our winter solstice; or, to
" speak more accurately, the middle road is the
" Equator, the inner the tropic of Cancer, and the
" outer the tropic of Capricorn. Besides these three
" roads of the sun, the *Burma* writings maintain,
" that there are three paths, one above the other;
" by which means they admit, as well as we do,
" although in a different manner, that the sun at
" some times is more near the earth, and at others
" more remote. The highest of these paths, and
" the most remote from us, is the path of the ele-
" phant; the middle is the path of the ox: the
" lowest is the path of the goat, because that animal
" delights in dry and warm places: when therefore
" the sun is in the goat's path, it produces great
" heat and dryness in the earth. Thus also, when
" the sun is in the higher path, we experience heavy
" rain, and great cold; this path is therefore named
" after the elephant, an animal that frequents cool
" and moist places. It is not supposed that the sun
" revolves through these paths according to any
" general law: but his motion in them depends on
" the will of mankind. When man acts with recti-
" tude, and observes the laws, the sun moves in the
" middle path, which is highly salutary: but when
" he violates the laws, the sun moves either in the

" upper or lower path, with much injury both to the
" produce of the earth, and the health of the peo-
" ple. The sun's motion is quicker than that of the
" moon; for when he moves in the road next *Mienmo*,
" he advances daily 1,000,000 *juzana;* when in the
" middle road, 2,000,000; and when in the outer,
" 3,000,000 *juzana*. On account of this diurnal
" revolution of the sun, when in the southern island
" *Zabudiba* it is mid-day, then in the northern it is
" mid-night, in the eastern island the sun sets, and
" in the western it rises.

" ALTHOUGH the sun, moon, and stars, appear to
" our eyes round, yet, say the *Burmas*, we are by
" no means to believe them spheres: for they are
" tapering, and appear round to us, in the same
" manner as does the light of a candle when viewed
" from a distance; and this the *Burma* doctors
" think confirmed by an example related in their
" books:—Formerly a prince of the *Nat* desired to
" see and converse with a certain great king of this
" island *Zabudiba*, who by his many virtues had be-
" come highly celebrated. For this purpose the
" prince sent his chariot, with many *Nat* attendants,
" to conduct the king to his presence. The chariot
" appeared to mankind in the beginning of the
" evening along with the moon then rising in the
" horizon, and was supposed by every one to be
" another moon, till it came near to the palace of
" the king."

" XVI. BEFORE we finish our account of the
" *Burma* astronomy, some other circumstances, re-
" lating to this science, and to meteorology, may
" be mentioned.

" IT has been already stated, that the *Burma*
" writings admit of an eighth planet, named *Rahu*,
" which gives no light, and on this account is not
" visible to mankind. The form of *Rahu* is thus
" described. His stature is 48,000 *juzana:* the
" breadth of his breast 12,000, of his head 900, of
" his forehead, his nostrils and mouth 300, the
" thickness of his fingers 50 *juzana;* of his feet and
" hands

" hands 200. When this monstrous and foul planet, " who like the others is a *Nat*, is inflamed with " envy at the brightness of the sun or moon, he " descends into their path, and devours, or rather " takes them into his mouth: but he is soon obliged " to spit them out, for if he retained them long, " they would burst his head by the constant ten- " dency which they have to pursue their course. " At other times he covers them with his chin, or " licks them with his immense tongue. In this " manner the *Burma* writings explain eclipses of the " sun and moon, both total and partial, making the " duration of the eclipse depend on the time that " *Rahu* retains the planet in his mouth, or under " his chin. The *Răhāns* say, that every three years " *Rahu* attacks the sun, and every half year the " moon. These eclipses however are not always " visible to the inhabitants of this southern island; " but although they may be invisible here, they are " not so to the inhabitants of the other islands, ac- " cording as the sun and moon may be opposite to " them at the time of the eclipse.

" The physical cause of the phases of the moon, " assigned in the *Burma* writings, is this: When " the moon is in conjunction, she can give no light, " because the sun is perpendicularly over her: in " the same manner as a house at noon gives no " shadow*: but as the moon recedes daily from the " sun 100,000 *juzana*, that part of it which is freed " from the disk of the sun, gives light; and this " light increases daily, as the two luminaries get at " a greater distance; in the same manner as a house " produces a larger and larger shadow, in propor- " tion as the sun advances to the west.

" Relative to the heat and cold which we " experience at different seasons of the year, " the *Burmas* say, that from the vernal equi- " nox to autumn, the sun is always tending " to the north, whilst at the same time the moon

" is

* The *Burma* doctors say so, as living within the tropic.

" inclines to the ſouth. The ſeaſon is then hot, be-
" cauſe of the prevalence of the ſun's rays, which are
" by nature hot. On the contrary, from the autum-
" nal equinox to the vernal, the ſun inclining to the
" ſouth, and the moon to the north, we experience
" cold, from the predominancy of the moon's rays,
" which are by nature cold.

" For the production of rain, ſeven cauſes are
" chiefly aſſigned; part of which are phyſical, and
" part moral. 1ſt, The power *Naga*, or of ſerpents,
" a kind of *Nat**. 2d, The power *Galoun*, or of
" certain large birds, which alſo are a kind of *Nat*†.
" 3d, The power *Siſſa*, or fidelity in contracts and
" promiſes. 4th, The power *Sila*, or obedience to
" the law. 5th, The power of religious men‡. 6th,
" The condenſation of the clouds. 7th, A certain
" kind of *Nat*, who preſide over ſhowers, and who
" occaſion rain, whenever they go out from their
" houſes to ſport in the air. In ſome of the *Burma*
" writings it is ſaid, that when the ſun is in the path
" of the goat, theſe *Nat* do not chuſe to leave their
" houſes on account of the great heat, whence there
" is then no rain. For this reaſon, the inhabitants of
" the *Burma* empire, in times of drought, are wont
" to aſſemble in great numbers, with drums and a
" long cable. Dividing themſelves into two parties,
" with a vaſt ſhouting and noiſe, they drag the cable
" contrary ways, the one party endeavouring to get
" the better of the other: and they think, by this

 means,

* Page 188 of this Volume. † Ibid. ‡ A certain *Burma* king, who reſided at *Arammattana* or *Pougan*, is ſaid to have been ſo virtuous, that he could cauſe rain whenever he pleaſed: and that in ſuch quantities, as to enable him to tranſport his fleet wherever his occaſions required. This ſtory was gravely told us at that city, and was ſaid to be authenticated in the beſt hiſtories of the *Arammattana* race of princes. This ſame king was ſuch a favourite with GODAMA, that twice during his reign gold fell from the heavens, and covered all the ſterile plain of *Pougan*. From the immenſe number of temples and religious buildings on that plain, there is no doubt, but that ſome king of *Arammattana* muſt have been very ſuperſtitious: and we may ſuppoſe, that the hiſtory of his reign was written by the clergy, who ſeldom fail to give a good report of their benefactors.

"means, to invite the *Nat* to come out from their
"houses, and to sport in the air. The thunder and
"lightning, which frequently precede rain, are the
"clashing and shining of the arms of these *Nat*, who
"sometimes sport in mock-battles. As the *Burma*
"writings acknowledge *Nat* presiding over rain, so
"they also (like the ancient heathen) believe in others
"governing the winds and the clouds."

So far the missionary, on the astronomical and physical ideas of the *Burma* doctors; ideas which, I doubt not, were brought from *Hindustan*, along with their religion and laws. Such therefore, probably, was the astronomical doctrine, taught in that country, before the introduction of *Brahmenical* science, which by all accounts, however deeply involved in fable, is much more perfect. I do not conceive it to have been the invention of GODAMA, or of those who in his name propagated a new religion, but to have been the common doctrine prevailing in *Hindustan* at the time: for the *Răhāns* seem to confine their studies almost entirely to theological, historical, moral, and political subjects. From the use of the same signs of the zodiac, there can be little doubt of their having derived at least that part of their astronomical knowledge from the *Chaldeans;* whose science may have in some degree reached *India*, nearly about the time of GODAMA, through the conquest of the *Persians* under DARIUS. But I do not think it likely, that all the knowledge which the *Hindus* possessed in the time of BOUDDHA, was derived from *Babylon*.* It is true, that the *Persians* shortly previous to this, as we learn from our best guide HERODOTUS, were an extremely rude and ignorant nation:† and we have very probable grounds given us by Sir WILLIAM JONES for believing that the *Persians* proper were of the same nation with the *Hindus*. It might therefore be concluded,

* See page of this volume. † I speak of the *Persians* properly so called, the inhabitants of *Parsistan*, who under CYRUS founded the first great *Persian* monarchy.

cluded, that in the ſixth century before the birth of CHRIST, the whole *Hindu* race were equally ignorant with their *Perſian* brethren. Such reaſoning would, however, I conceive, be inconcluſive. Why might not the *Hindus* of *Matura* or *Caſhmere* be as much ſuperior to their countrymen of *Perſia*, as the *Arabs* of *Nineveh* or of *Babylon* were to the wanderers of the deſert? But even allowing the *Hindus* to have been incapable of inventing ſcience, might they not have received inſtruction from the eaſt, as well as from the weſt? Their eaſtern neighbours, at this time, had made very conſiderable progreſs; ſuch, indeed, as enabled them, about this period, to produce a CONFUCIUS. But that the *Hindus* were themſelves capable of obſervation, ſo as to make advances in ſcience, their undoubted invention of cyphers, in arithmetic, is a clear proof.

DURING our ſtay at *Amarapura*, beſides the almanacs, which were probably conſtructed by *Brahmens*, I alſo ſaw ſeveral treatiſes, ſaid to be on aſtronomical ſubjects. JOHANNES MOSES, *Akunwun* of *Haynthawade*, gave Captain SYMES a delineation of the ſixty-eight *Burma* conſtellations, with a ſhort explanation in the *Burma* language. I have here given a copy of the delineations, and a tranſlation of the written part, which, for the benefit of thoſe who wiſh to know the ſtructure of the language, I have made verbal, following exactly the arrangement of the words in the original. In explaining theſe conſtellations, it is to be obſerved, that to each a fanciful figure is annexed, in the ſame manner as our conſtellations are delineated on globes or maps. This figure is called the *Thadan*, or picture of the conſtellation; and the name of the object repreſented by the picture, is often the ſame with that of the conſtellation: but, more commonly, the names are quite diſtinct, and that applied to the conſtellation is either arbitrary, or a *Pali* word, with which language my interpreter was not acquainted. In the written account, there is, in ſome caſes, a difference

rence from the drawings, both in the figure, and in the number of ſtars: but I have, in both caſes, followed the originals, not knowing which is right. Some of the figures, reſembling a roſe, ſeem to repreſent planets, and are ſaid to preſide over ſome day of the week, or ſome time of the day. To the other figures are in general annexed certain cities, or countries: and the *Burmas* ſuppoſe, that, when a conſtellation appears bright, its dependant country is fruitful and happy: and that the contrary is indicated by the conſtellation appearing dim. Of many of theſe countries I have never heard, nor could I obtain any information concerning their ſituation: but ſeveral of them are in the *Burma* empire, or in its vicinity. Unfortunately, the copy of the *Aſiatick* Reſearches, which I conſulted, had not the figures of the *Brahmenical* conſtellations, to which Sir WILLIAM JONES refers, ſo that I can make no compariſon but by the name.

TRANSLATION OF THE WRITTEN ACCOUNT OF THE BURMA CONSTELLATIONS.

1. " Of *Sunday* the Star."
2. " The *Pyain* conſtellation five circles has, of " *Thoukkada* country the conſtellation." *Pyain* is the ſmall ſpecies of white heron, common in *India*, and called, by the *Engliſh* there, paddy-bird. The circles means ſtars, as they are ſo repreſented in the delineations, a cuſtom evidently introduced from *China*. *Thoukkada* is a government and city in *Siam*, named by M. LOUBERE *Socotai*.
3. " *Rewade* an alligator's figure has, *Kutheinnaroun* " country, and nine circles it has." This is evidently the ſame name with the *Révatì* of Sir WILLIAM JONES, which has thirty-two ſtars. *Rewade* ſignifies large water. From the letters with which *Kutheinnaroun* are written, it is evidently a *Pali* or *Sanſcrit* word, and is probably ſome place in *Bengal*.

4. " *Uttara-*

THE BURMA CONSTELLATIONS

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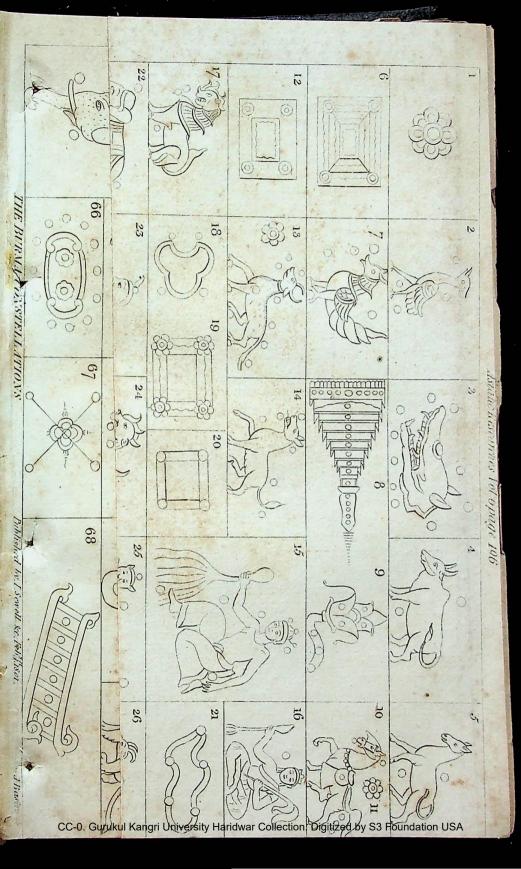
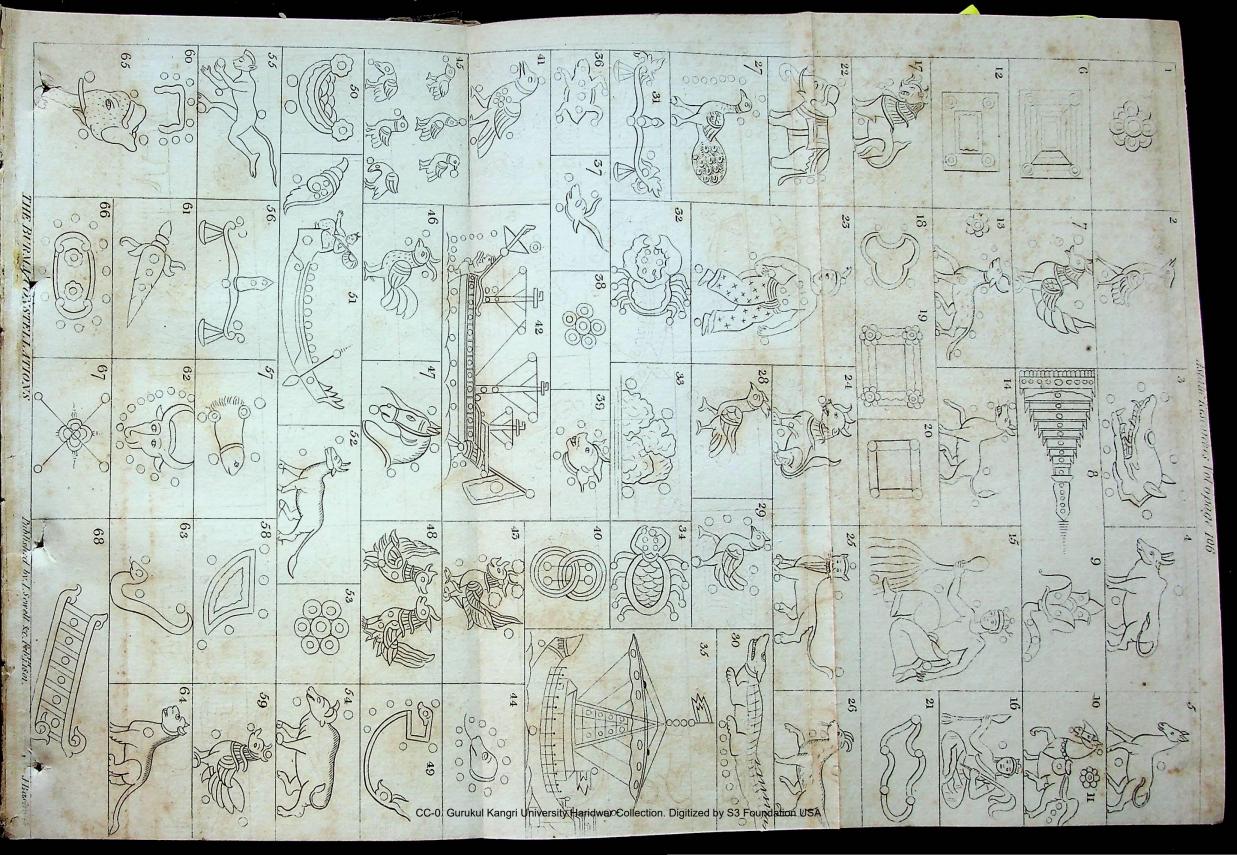
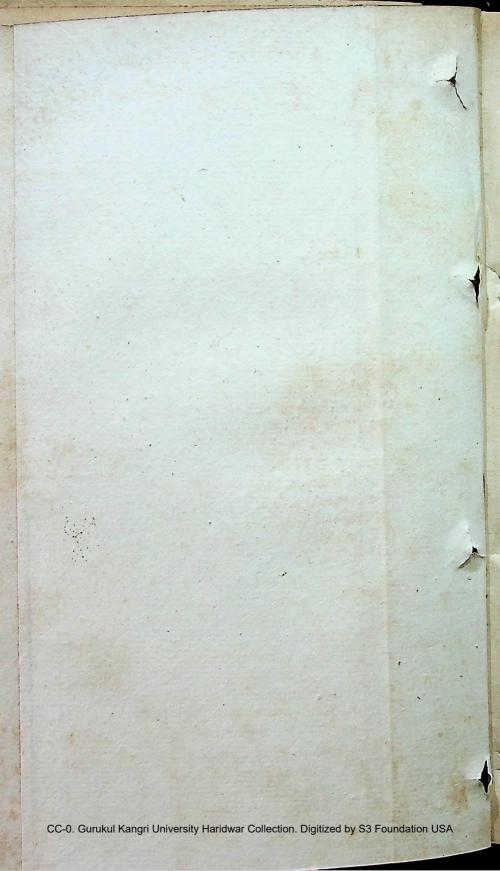

4. "*Uttara-parabaik* a cow's figure has, and two cir-"cles, and the *Kappelawut* country." Several conſtellations in the liſt of Sir WILLIAM JONES begin with *Uttara*.

5. "*Pyouppa-parabaik* of a cow the picture has, and "two circles, *Patanago* country it governs." *Patagano* is a city and government in the *Burma* kingdom, on the eaſt ſide of the *Eyrawade*, in latitude 19° 55″.

6. "A couch is *Sagata* conſtellation, four circles it "has, and the *Kathee* country." *Kathee* has been corrupted by us into *Cuſſay*. It is an independent kingdom between *Ava* and *Bengal*. Its king reſides at *Munnypura*.

7. "The *Pyathat*, of twenty-four circles, is of *Kieen* "country the conſtellation." *Pyathat* is a kind of ſpire, permitted only to be uſed in buildings or boats dedicated to the perſonal uſe of GOD, of the king, and of the *Zarado*.

8. "The duck conſtellation five circles has, *Shan* is "its country." From *Shan* our word *Siam* is corrupted; but the inhabitants of the kingdom of *Siam* make a ſmall part only of thoſe to whom the *Burmas* give the appellation of *Siammeſe*.

9. "The *Kyabuayn aroo* leaf is the *Talain* country "conſtellation, it has ſeven circles." *Talain* is the *Burma* name for the original inhabitants of what we call the kingdom of *Pegu*.

10. "The horſe conſtellation has eleven circles, *Europe* is its country."

11. "The morning conſtellation one circle has, of "*Dunwun* plant the fruit." I do not know what plant is meant: perhaps it is the *Trapa*?

12. "The table conſtellation four circles has, of the "*Kiayn* country the conſtellation." The *Kiayn* are a ſimple innocent people inhabiting the mountains between *Ava* and *Arakan*.

13. "*Zain* conſtellation eleven circles has."

14. *Thattapeſcia* with a leopard's picture four circles has.

15. "Of

15. "Of *Danatheidha* the fisherman's picture four circles has.
16. "*Tharawun* constellation a hermit's picture three circles has."
17. "Of *Uttara* the lion's picture two circles has, "*Moranun* country governing."
18. "The *Pangiayn* mountain constellation four cir- "cles has, of *Rakain* country the constellation." *Rakain* is the proper name of *Arakan.*
19. "*Tareindane* constellation four circles has, of "*Yoodaya* country the constellation." *Yoodaya* is the *Burma* pronunciation of the ancient capital of the kingdom of *Siam;* and they in general call the *Siammese Yoodaya*, in order to distinguish them from the other tribes of the great *Shan* race.
20. "A couch is *Pagan* constellation with four cir- "cles, of *Shethæk* country the constellation." We had another couch No. 6.
21. "The cloud constellation has five circles, of "*Thulabe* the constellation."
22. "The *Shan* country the elephant constellation "with six circles has." The *Shan* have another constellation, see No. 8.
23. "The *Brahmen* constellation of eight circles, "*Kaleingareet* country governs." *Kaleingareet* is the proper *Burma* appellation for *Hindustan.*"
24. "Of *Pyouppathan* the lion's picture two circles "has, *Mouttamma* country it governs." We had another lion No. 17. *Mouttamma* is the *Burma* name for *Martaban.*
25. "Of *Mula* the cat's picture five circles has, *Peen-* "*zalareet* is its country."
26. "Of *Seitta* the goat's picture five circles has, "*Zedouttara* is its country."
27. "Of *Anurada* the peacock's picture has fifteen "circles, and the *Zedouttara* country." *Anuradha*, in the account of Sir WILLIAM JONES, is the scorpion.
28. "The fowl male of *Peenza* constellation circles "fifty has, of *Sawa* country the constellation.

29. "The fowl female of *Utta* conſtellation eight cir-"
"cles has, of *Uzaung* country the conſtellation."

30. "Of an alligator the ——— is the picture of *Ut-*
"*tara* conſtellation with eight circles, and the
"*Lahu* country." Of the word *a-me-kah-han*, which follows alligator, I do not know the meaning.

31. "The balance conſtellation."

32. "The crab conſtellation of ten circles has, *Raſa-*
"*gyol* country."

33. "The mountain conſtellation four circles has."

34. "*Buchia* the crab conſtellation ten circles has." *Puſhya* is the crab of Sir WILLIAM JONES. Here we have two crabs, No. 32—34.

35. "The *Brahmen's Buchia* has a boat's picture, and
"the *Dagoun* country." *Dagoun* is the great temple near *Rangoun*.

36. "Of *Adara Daway* is the country." The picture is meant to repreſent a turtle. *Daway* is the country we call *Tavay*.

37. "*Mecathe* has of an antelope's head the picture,
"three circles, and the *Haynthawade* country." *Haynthawade* is the polite *Burma* name for the city and province of *Pegu*.

38. "Of *Friday* the Star."

39. "*Buchia* conſtellation has eight circles, and *Yun*
"country." The *Yun* are the inhabitants of *Saymmay* or *Chiamay*.

40. "*Zaduka* conſtellation four circles has, in a pair
"of fetters, of *Giun* country the conſtellation." I have never learned what country is meant by *Giun*. It is always in the king's titles mentioned along with the *Yun*, it is therefore probably contiguous, and may be the northern *Laos*.

41. "The crow conſtellation eleven circles has, and
"the *Thayndua* country." *Thayndua* is the moſt ſoutherly government in the preſent diviſion of the *Arakan* kingdom.

42. "The *Kyay* ſhip of twenty-eight circles."

43. "*Hayntha*, a conſtellation of ſeven circles, be-"longs to *Radanapura*." *Radanapura* is the polite name for old *Ava*. The *Hayntha* is that beautiful ſpecies of *Anas* called by the *Engliſh* in *Bengal* the *Brahmney* gooſe.

44. "Of *Rohane* the ſnake's-head figure has ten cir-"cles." *Rohini* of Sir WILLIAM JONES.

45. "*Kiatteka* has a fowl's picture, and ſix circles." *Critica* of Sir WILLIAM JONES is the bull. The names appear to be the ſame.

46. "*Pagan* country is governed by the old cock's "figure." There are two cities called *Pagan*. The great *Pagan* on the weſt ſide of the junction of the *Kiayn-duayn* and *Ayrawade;* the leſſer *Pagan* lower down on the eaſt ſide of the *Agrawade*.

47. "Of *Athawane* the horſe's head picture has ſix "circles, and the *Rakain* country." *Aſwini*, which ſeems to be the ſame name, is, according to Sir WILLIAM JONES, the ram. *Arakan* has another conſtellation No. 18.

48. "*Pozoke* a conſtellation of eight circles belongs "to the *Talain* country, like the *Hayntha* male "and female." The two rival nations of *Pegu* and *Ava* have choſen a ſimilar emblem, ſee No. 43. The *Talain* have alſo another conſtellation, No. 9.

49. "*Putthata* conſtellation ſeven circles has, of the "*Raneezzee* tree the fruit."

50. "*Aykatheitta* a conſtellation of four circles, of "*Kale* country the conſtellation, is like a ba-"ſon." *Kale* is a *Shan* city near the *Kiaynduayn*, about 300 miles N. E. from *Ava*.

51. "*Tarouttara* conſtellation two circles has, and "the *Taroup* country." This is the *Burma* name for *China*.

52. "Of *Uttarabaragounne* the bullock's picture two "circles has."

53. "Of *Wedneſday* the Star."

54. "Of *Pyouppabaragounne* the cow's picture three "circles has."

55\. "*Matha* has of a monkey the figure, four circles, "and the *Baranathe* country."

56\. "The balance conſtellation four circles has." We had another balance No. 31.

57\. "Of *Athaletha* the horſe's-yard picture, four circles "has, and the *Thattoun* country." *Aſleſha*, the ſame name, according to Sir WILLIAM JONES, is the lion. *Thattoun* was a very large town between *Pegu* and *Martaban*. It is now in ruins.

58\. "The flag is *Pathatta* conſtellation, ſix circles it "has."

59\. *Eeſſa* conſtellation ſix circles has, of *Momain* "country the conſtellation."

60\. "Of *Akap*, a conſtellation of eight circles, *Daway* "is the country." This is a ſecond conſtellation belonging to *Tavay*, ſee No. 36.

61\. Of *Thanliœk*, a conſtellation of three circles, "*Kothambe* is the country." The figure is meant to repreſent a ſpear's head.

62\. "*Wethaga* has of a buffaloe's head the picture, and fourteen circles."

63\. "Of *Thuade* a great ſnake's-head picture, has "three circles, and the *Thayndua* country." *Swati*, the ſame name, is, according to Sir W. JONES, the balance. *Thayndua* has alſo another conſtellation, ſee No. 41.

64\. "Of *Zeittara* the tiger's picture, has one circle, "and the *Wethale* country."

65\. *Hathadda* of an elephant's head the picture has, "*Dhagnawade* is its country." *Haſta* of Sir WILLIAM JONES. *Dhagnawade* is the polite name for the caſtle of *Arakan*.

66\. "*Kobiape* conſtellation with eleven circles has "the *Myamma* country." *Myamma* is the name by which the *Burmas* diſtinguiſh themſelves.

67\. "A fowl's foot is *Thareiddha*, a conſtellation "of four circles, of *Laynzayn* country the con- "ſtellation."

"ſtellation." *Laynzayn* is the vulgar name for "the capital of the ſouthern *Laos.*

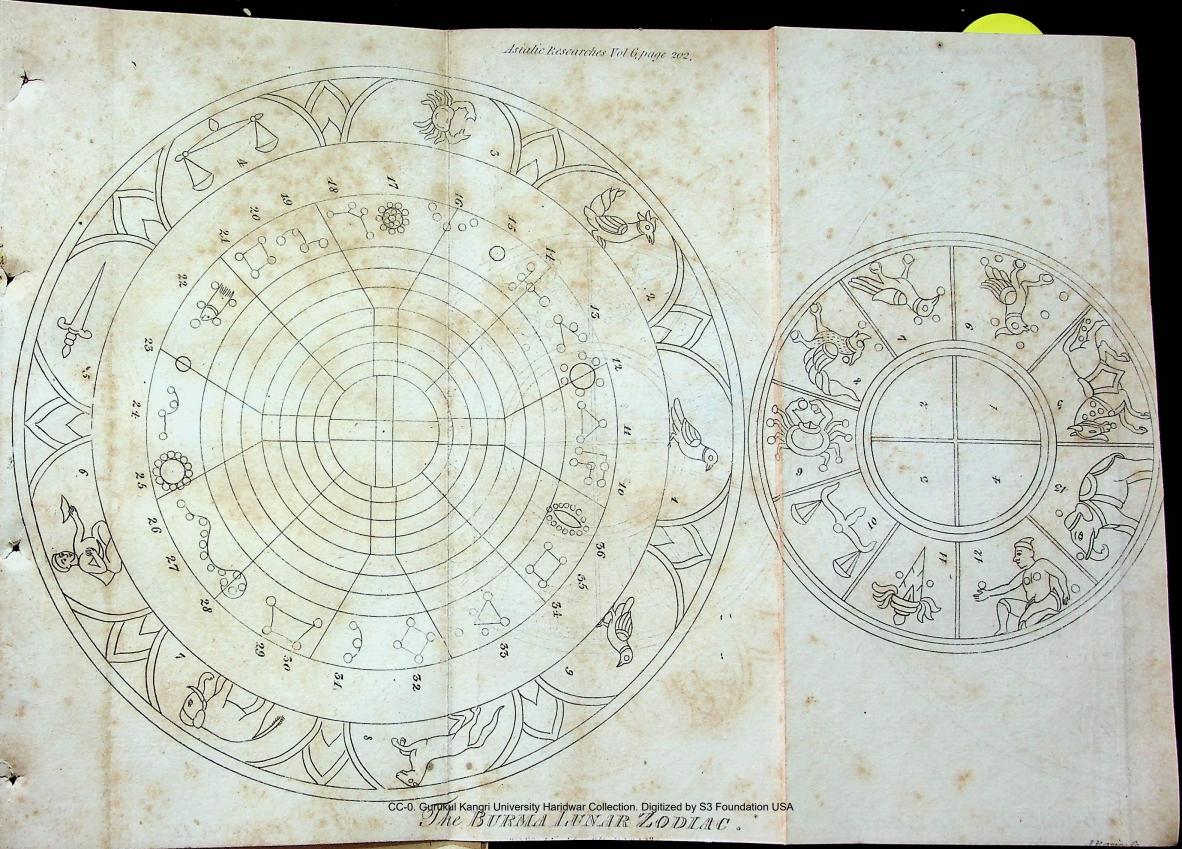
68. "A boat's ladder is *Tareiddha*, a conſtellation of "ſix circles, of *Kula* country the conſtellation." *Kula* is the name commonly given to *Europeans*, but is applicable to all the weſtern nations.

ALONG with the accounts of the *Burma* conſtellations, JOHANNES MOSES gave Captain SYMES two circular ſchemes, which evidently relate chiefly to a lunar zodiac. Theſe ſchemes Captain SYMES obligingly communicated to me, but without any explanation.

THE ultimate diviſion in the larger plan is into twenty-ſeven ſigns, repreſenting the diurnal motion of the moon in her orbit. I neglected to procure the *Burma* names for theſe ſigns; as I was told, that they were all contained in the delineations of the ſixty-eight conſtellations; and as I thought, from the diſpoſition of the ſtars, that I ſhould be able to find out what conſtellations were meant: but ſince I have had leiſure to examine them, I find that this is by no means the caſe.

THE next diviſion, and which is to be ſeen in the outer circle of both plans, is into nine ſigns, each containing three of the former. The names for theſe are: 1, the horſe conſtellation; 2, the *Pyain* conſtellation; 3, the crow conſtellation; 4, the *Hayntha* conſtellation; 5, the *Kayn* crab conſtellation; 6, the balance conſtellation; 7, the *Zangiayn* conſtellation; 8, *Dana* conſtellation; 9, the elephant conſtellation. Theſe are to be ſeen in the delineation, and liſt of the *Burma* ſtars, Nos. 10, 2, 41, 43, 34, 56, 61, 15, 22.

Theſe

The BURMA LUNAR ZODIAC.

The inner diviſion in both ſchemes is into four. Theſe are named *raung*, the meaning of which word I do not know: the firſt is named *Banraung*, the ſecond *Ngue* or ſilver *raung*, the third *Shue* or golden *raung*, and the fourth *Mya-raung*. Theſe, I conceive, repreſent the ſpaces of the zodiac paſſed through by the moon in each of her four phaſes.

This lunar zodiac is alſo in uſe among the *Brahmens*, and Sir William Jones has favoured us with a repreſentation of it after their manner*. They have the diviſions into 4, 9, and 27: and the figures in the center are no doubt a repreſentation of *Mienmo*, and the ſurrounding iſlands, with the princes of the *Nat Zadumaharit* ſitting on mount *Jugando*: in one thing however there is a material difference. Sir W. Jones ſays, that the nine figures repreſent the ſun, moon, and planets, with the dragon's head or aſcending node, and tail or deſcending node. It is true, that the *Burmas* believe in a planet, which performs the ſame effect as the moon does when near her nodes at the time of a conjunction or oppoſition, that is to ſay, which produces an eclipſe: but the diviſion into nine, in uſe among the *Burmas*, is evidently zodiacal. The diviſions are not called *Kiay*, which ſignifies a planet: but they named *Tara*, or a collection of fixed ſtars: and in both the written account, and in the delineation of the ſixty-eight conſtellations, there is an account of the number of ſtars contained in each. Were we ſure that theſe ſchemes were mentioned in the writings of the *Răhāns*, and not lately introduced into the *Burma* kingdom by the *Brahmens*, we might eaſily account for this difference. It would in that caſe be probable, when, in compliance with the prejudices of their new converts, the *Brahmens* adopted this lunar zodiac, that ſeeing no utility in the diviſion into nine, and having a more juſt notion of the planetary bodies, they filled up the places of theſe nine conſtellations with the different parts of the ſolar ſyſtem. I make little doubt

* *Aſiatick* Reſearches, II, 291, et ſeq.

doubt indeed, but that the *Brahmens* originally insinuated themselves into the courts of the *Hindu* princes as astrologers, in the same manner as we see them now doing in the courts of the *Indian* princes beyond the Ganges. By degrees they also introduced their superstition, building it in part on the doctrine previously existing in the country, and at length firmly establishing their favourite and destructive system of cast.

In the larger plan, between the four *raung* and the twenty-seven constellations of the zodiac, we have a division into twelve, which, I should imagine, is meant to represent the sun's motion through the zodiac, during the twelve lunations of which the *Burma* year consists. At any rate, as has been mentioned before, the *Burmas* are acquainted with a solar zodiac divided into twelve signs, and represented by figures the same or analogous to ours. My friend SANGERMANO gave Captain SYMES a silver bason on which they were embossed. He conceived, and I think justly, that this zodiac had been communicated to the *Burmas* from *Chaldea* by the intervention of the *Brahmens*. And I find that in this conjecture he is supported by Sir W. JONES*. Both however, I am afraid, will excite the indignation of the *Brahmens*, who, as the learned judge in another place alledges, have always been too proud to borrow science from any nation ignorant of the *Vedas*. Of their being so proud as not to acknowledge their obligations, I make no doubt: but that they have borrowed from the *Chaldeans*, who were ignorant of the *Vedas*, Sir W. JONES himself has proved. Why then should he have opposed the sarcastic smiles of perplexed pandits to the reasoning of M. MONTUCLO†, when that learned man alledged that the *Brahmens* have derived astronomical knowledge from the *Greeks* and *Arabs*? The *Chaldeans* were certainly a branch of the *Arab* nation: and the expression of the *Brahmens* quoted by

* *Asiatick* Researches, II. 306. † *Asiatick* Researches, II. 303, 289.

by him as proof, namely "that no base creature can "be lower than a *Yavan* or *Greek**," only exposes their miserable ignorance, and disgusting illiberality.

"XVII. Below the habitation *Zadumaharit*," says the missionary copying from the *Burma* writings, "are found many *Nat* who inhabit waters, woods, "and mountains, in the shape of large birds, dragons, "and the like. The *Burma* writings however by no "means alledge, that these beings enjoy the same hap-"piness, or the same duration of life, as the *Nat* "*Zadumaharit*. These circumstances vary, accord-"ing to the nature of the actions performed by these "*Nat*, when in a human form. It is said that the "king of the dragons saw the first God, who appeared "in this world†, and that he will see the last; or in "other words, that the duration of his life will be "nearly equal to that of the world. It is also said "of this king of the dragons, that he always sleeps "at the foot of those mountains, from whence the "river *Casse* springs; and that he only awakes on the "appearance of a new God. That is, when any "being has arrived at such a degree of merit, as to "deserve to be declared a God, he eats rice, which "has been boiled in a golden goblet; he then, in "order to give the people a proof of his having ac-"quired divinity, throws the goblet into the river "*Casse*. The goblet swims up against the stream, till "it arrives at the place where the king of the dragons "sleeps. There it strikes against the rock, and makes "a noise, till the king awakes. There are also a kind "of *Nat*, named *Bommazo*, who live longer than "those of *Zadumaharit*."

"XVIII. Above *Zadumaharit* is the *bon* or habi-"tation *Tavateinza*, which, as has been said, is situated "on the plane of *Mienmo's* summit. The supreme ruler "or emperor of this habitation has subject to him "thirty-two inferior *Nat* princes. The great city *Mahasudassana*,

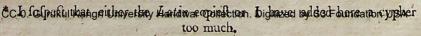
* *Asiatick* Researches, II, 306.

† The *Burmas* believe, that in every world there arise four or five Gods, one after the other.

" *Mahasudassana*, in which this emperor resides, has
" a square form. The pavement, streets, and ways,
" are entirely covered with silver or gold. The gilded
" wall, which surrounds the city, is a perfect square.
" Each of its sides is in length 10,000 *juzana*, in
" height 150*, and in width one *juzana* and a half.
" The gates are forty *juzana* high, are covered with
" gold and silver, and adorned with precious stones.
" Seven ditches, distant one *juzana* from each other,
" surround the walls of the city: and a *juzana* beyond
" the last ditch is a row of marble pillars, gilded and
" studded with jewels. At the farther distance of a
" *juzana* and a half are seven rows of palm trees, loaded
" with gems, pearls, gold and silver. Every where
" are to be found lakes of the most limpid water, where
" are kept gold and silver boats, into which the male
" and female *Nat* entering with their drums and mu-
" sical instruments, and pursuing one another through
" these delightful lakes, now dance, then sing; some-
" times pluck the odorous flowers from the trees,
" which hang over them; and sometimes admire the
" beauty of the birds, which frequent the trees and
" lakes. Beyond the palms every where grows the
" abovementioned *Padeza-byan*, the trees on which,
" in place of fruit, hang the cloathing and food of
" the *Nat*."

" TWENTY *juzana* to the north of this city is a
" garden named *Nanda*, 100 *juzana* in length, and as
" much in breadth. In its center is a lake of the
" same name, and equally pleasant with those just
" now described. In this garden chiefly grows that
" celebrated flower, which is as large as a chariot
" wheel. The garden is named *Nanda*, which sig-
" nifies a crowd, because the *Nat* frequent it in mul-
" titudes, in order to pull the flower, and wear it in
" their hair."

" To the east of the city, at the distance also of
" twenty *juzana*, is another garden, equally large and
" pleasant

* I suspect that either the *Latin* copyist or I have added here a cypher too much.

"pleaſant as the former. It is named *Zeittalata**, "and in it grows that renowned twining plant, which "every thouſand years produces a moſt exquiſite "fruit. In order to get this fruit the *Nat* aſſemble "here in crowds for a hundred years before it ripens: "and for one whole year, ſing and dance, accom-"panied by drums and other muſical inſtruments. "Having eat of that fruit, the *Nat* become inebria-"ted for four entire months."

"To the ſouth and weſt of this city are alſo two "other gardens of the ſame ſize, and ornamented with "lakes, and beautiful trees. The garden to the ſouth "is named *Paraſu*, that to the weſt *Miſſata*."

"To the north-eaſt of *Mahaſudaſſana* is a very "large hall, extending every way 300 *juzana*. In "circumference it is 900 *juzana*, and in height 450. "From its roof hang golden bells: and its ſtairs, "walls, and pillars, every where ſhine with gold and "ſilver, intermixed with precious ſtones. The pave-"ment is of cryſtal, and each row of pillars contain "100 columns. The road, which leads to this hall, "is twenty *juzana* long, and one broad; and from "ſpace to ſpace are planted trees abounding with all "kinds of fruits and flowers. When the great em-"peror wants to go to this hall, winds ariſe, which "blow off all the leaves and flowers from the trees, "and freſh ones immediately ſucceed. With theſe "flowers, the *Nat* preſiding over the winds, adorn the "whole road to the hall; and the flowers are ſo "abundant, that they reach up to the knees of the "paſſengers. In the middle of this hall ſtands the "great imperial throne, whoſe plane extends a *juzana*; "and over it is the white umbrella†. No throne "ſhines

* *Lata*, *Lota*, or *Lot*, in the language of the *Hindus*, ſignifies a climbing plant.

† Different ranks in the *Burma* empire are diſtinguiſhed by their umbrellas. That of the king is white, with a deep fringe adorned with gold lace and plates. Thoſe of the princes of the blood are gilded, and without a fringe. Thoſe of the four great miniſters of ſtate, called *Wungyes*, are of the ſame ſhape with the royal one [illegible] of the hereditary

" ſhines like this with gold, pearls, and jewels. It is
" ſurrounded by the thirty-two thrones of the in-
" ferior *Nat* princes, and behind theſe ſit the other
" *Nat*, each in his proper place. In this grand con-
" vention are alſo preſent the four chiefs of the *Nat*
" *Zadumaharit*. At the time in which the *Nat* thus
" crowd round the great emperor to do him honour,
" they touch their muſical inſtruments, and ſing me-
" lodiouſly. The four *Zadumaharit* princes then call
" the *Nat* under their juriſdiction, and ſend them into
" this ſouthern iſland *Zabudiba*, commanding them
" to enquire diligently, if its inhabitants obſerve the
" holy days and laws, and exerciſe charity; or if, on
" the contrary, they violate the laws, and neglect their
" duty. At this command, quicker than the winds,
" the *Nat* paſs through all the parts of this iſland;
" and having carefully noted, in a golden book, the
" good and bad actions of men, they immediately re-
" turn to the hall, and deliver their writing into the
" hands of the four *Zadumaharit* princes, who paſs it
" to the leſſer princes *Tavateinza*, and theſe forward it,
" till at length it reaches the great emperor. He,
" opening the book, reads aloud, and his voice, if it
" be natural and even, is heard to the diſtance of
" twenty-two *juzana*: but if it be raiſed, ſounds over
" the whole habitation *Tavateinza*. If the *Nat* hear
" that there are many men who obſerve the law,
" practiſe good works, and beſtow alms, they ex-
" claim, " Oh! now the infernal regions will be
" empty, and our abode will be full of inhabitants."
" If, on the contrary, there have been found few good
" men, " O wretches, (ſay they ſmiling,) men and fools,
" who feaſting for a ſhort life, for a body four cubits
" in length, and for a belly not larger than a ſpan,
" have heaped on themſelves ſin, on account of
" which they muſt be miſerable in futurity." Then
" the

hereditary governors of provinces, or tributary princes, are yellow. Thoſe of governors of royal provinces, called *Myoowuns*, are blue. Lower officers uſe black umbrellas, but ſupported by very long ſhafts. People who have no rank, uſe black umbrellas with ſhafts of moderate length.

" the great emperor, that he may induce men to live vir-
" tuoufly, charitably, and juftly, fpeaks thus: "Truly,
" if men fulfilled the law, they would be fuch as I
" am." After this he, with all his train, to the number
" of 36,000,000 of *Nat*, return to the city, in the
" midft of mufic.

" In the center of this glorious city is built the
" palace of the emperor, of which the height is 500
" *juzana*: but who can defcribe its beauty, ornaments,
" treafures, or the abundance of gold, filver, gems, and
" precious ftones, with which it fhines? Small ftand-
" ards, of gold and filver, are placed in every part.
" The chariot in which the great emperor is carried,
" extends 150 *juzana*, and in it are placed a great
" throne, and a white umbrella. This chariot is drawn
" by 2,000 horfes, before whom is the great ftandard,
" 150 *juzana* high, which, when moved by the wind,
" yields a moft agreeable murmur."

" Twenty *juzana* to the north-eaft of the great city
" is a moft celebrated tree, the facred image of the ha-
" bitation, which, like the facred trees of the four great
" iflands, lives for the duration of one world. Under
" this tree is a prodigious ftone, fixty *juzana* long, fifty
" broad, and fifteen high. It is fmooth and foft like
" cotton, and under the feet of the great emperor is e-
" laftic, being depreffed when he ftands on it, and rifing
" again when he defcends, as if it were fenfible of the
" honored weight by which it is preffed. When the
" affairs of our fouthern ifland are profperous and
" quiet, the half of the emperor's body finks into the
" ftone: but when a contrary ftate of affairs exifts, the
" ftone remains tenfe and rigid like a drum. This fa-
" cred tree is furrounded by fome of the kind called
" *Padeza-bayn*, and by others producing both fruit and
" flowers. The road leading to this tree is twenty *ju-
" zana* long, and is every year frequented by the *Nat*
" reforting to the place. When the tree flowers, its
" ruddy fplendour extends, all around, to the diftance
" of fifty *juzana*, and its moft agreeable odour is dif-
" fufed twice that length. When it has flowered, the

"keeper of the tree informs the emperor, who is im-
"mediately seized with a desire to see it, and says, if
"an elephant would now appear, it would be both a-
"greeable and convenient. No sooner has he spoken,
"than the elephant appears: for here, as well as in all
"the other habitations of the *Nat*, there are no animals,
"such as in our earth; but whenever any *Nat* has use
"for an animal, a temporary one is immediately creat-
"ed. This elephant has thirty-three heads, corres-
"ponding to the thirty-three *Nat* princes. Every head
"has seven teeth, which are fifty *juzana* in length. In
"every tooth are seven lakes, in every lake seven
"flowering trees, on every tree seven flowers, in every
"flower seven leaves, in every leaf seven thrones, in
"every throne seven chambers, in every chamber seven
"beds, in every bed seven *Nat* dancing girls. The
"head, on which sits the supreme emperor, is thirty
"*juzana* in bulk; and is ten times larger than the other
"heads. On the large head is raised a pavilion three
"*juzana* high, under which is fixed the ruby throne of
"the emperor. This elephant, called *Eravum*, ap-
"proaches the emperor, and after him the thirty-two
"princes mount. After the elephant the other *Nat*
"follow, each in his couch of state. Having come to
"the sacred tree to collect the flowers, this vast mul-
"titude dismount; and the emperor being seated on
"the stone, the whole sit down, each in his proper place,
"and begin to celebrate the festival, which continues
"for four months. They then gather the flowers, to
"do which they have no need to ascend the tree: for
"the *Nat* of the winds shake it, and make the flowers
"fall; and lest the beauty of the flowers should be
"spoiled, the winds support them, nor permit them to
"touch the ground. The whole bodies of the *Nat* are
"then covered with the odorous dust coming from the
"stamens of the flowers.

"The stature of these *Nat* is three *gaut*: and the du-
"ration of their lives four times that of the *Nat Zadu-*
"*maharit*, or thirty-six millions of our years. The
"*Nat*

" *Nat* of this habitation, like those of the higher kinds,
" do not require the light of the sun or moon, the light
" of their own bodies being sufficient: for they shine
" like so many suns or stars."

" XIX. It has been mentioned*, that the mountain
" *Mienmo* is sustained by three feet of carbuncle†.
" Now the space that lies between these is the habitation
" of a kind of *Nat* named *Assura*. Although these *Nat*
" inhabit a different abode, yet are they exactly of the
" same kind with the *Tavateinza*: for they were driven
" by guile from that habitation, which formerly they
" occupied. The manner in which this happened, is re-
" lated as follows in the *Burma* writings. GODAMA, be-
" fore he became a god, when he was in the state of a man
" in *Zabudiba*, with thirty-two other men of the same
" village, by the good work of repairing the high ways,
" and by other virtuous actions, deserved after death
" to become *Nat Tavateinza*. On their arrival the an-
" cient inhabitants of that happy abode, in sign of their
" joy, and with flowers in their hands, descended half
" way down *Mienmo*, in order to welcome their future
" companions. GODAMA, who then was called MAGA‡,
" began to contrive, how he might drive these *Nat*
" from their ancient possessions. He and his compa-
" nions accordingly pretended to have drank wine:
" but what they drank, was not true wine. The former
" *Nat Tavateinza*, imitating the example of these men,
" drank real wine, and became intoxicated. Then
" MAGA making a signal to his companions, they drag-
" ged the *Nat*, while insensible with wine, by the heels,
" and cast them out of the abode *Tavateinza*. But as
" the lot, acquired by the merit of the good actions of
" these *Nat*, was not expired, a habitation formed it-
P 2 " self

* Page 176 of this Volume.

† In place of saying that MERU is supported by three feet, the *Brahmens* alledge, that it is placed on the back of a prodigious tortoise.

‡ GODAMA is said by the *Brahmens* to be the son of MAGA or MAJA.

" self for them between the feet of *Mienmo*; and this
" habitation is called *Assura bon*, which in every thing,
" except its sacred tree, resembles that called *Tavatein-*
" *za**. In *Assura bon* there is also a tree, under which
" there are four immense stones, each of them 300 *ju-*
" *zana* square. On these rocks sit the four *Assura*
" princes, when they determine suits, and administer
" justice to their subjects. Among these princes, in
" the length of time, one has obtained supreme domi-
" nion, and has become emperor of all the *Nat* dwell-
" ing in this habitation †.

" BESIDES this injury, the *Assura* have received an-
" other from the new inhabitants of *Tavateinza*: for
" the great emperor ravished a daughter of the *Assura*
" prince. Mindful of these injuries, the *Assura Nat*
" vowed perpetual war against the inhabitants of *Ta-*
" *vateinza*. When they used to see their sacred tree
" producing flowers different from those of their for-
" mer abode, breathing revenge, they were wont to as-
" cend *Mienmo*, and to take prisoners the giants, dra-
" gons, vultures, and other similar *Nat*, retained by the
" *Tavateinza* emperor as a guard for his frontiers. On
" the report of this, the emperor mounting his elephant
" 150 *juzana* high, used to call to his assistance the *Nát*
" of the sun, moon, and stars, and those of the winds
" and clouds. He then created new forms of *Nat*, and
" of these raised an army without the walls of the great
" city. But the *Assura* prevailing, forced him to retire
" within the walls. The rage of the *Assura* was then
" wont to abate; and the emperor having collected his
" forces, used to drive them from his walls, and to pur-
sue

* We have here the most abominable cunning of GODAMA related as a laudable action: for, as I observed before, among his followers, cunning is looked upon as a virtue. (Page 185).

† The *Burma* monarchs, in their cities, courts, and manners, imitate as much as possible, those described as belonging to the *Nàt* princes; and of course must greatly resemble the ancient princes of western *India*; from whom undoubtedly these descriptions have been borrowed; and probably as much resemble the originals, as the description in the *Arabian* Nights Entertainments do the courts of *Mohamedan* kings.

" ſue them in their flight. The *Aſſura* having failed,
" touched a drum made of the claws of Cancer, and
" then retired to their own abode. In theſe battles no
" one was killed: the *Nat* only tore one another. Now,
" however, the *Aſſura* remain quiet at home: nor do
" they any more engage in warlike enterprizes*.

" According to what Godama taught, whoever
" honours his parents†, and old age; whoever reſpects
" the three excellent things, namely, God, the law, and
" the *Răhāns*; whoever abhors wrangling, and diſputes;
" whoever is charitable, particularly to the *Răhāns*:
" all ſuch perſons ſhall after death tranſmigrate into
" *Tavateinza*."

" XX. Concerning the happineſs enjoyed in the
" higher abodes of *Nat*, and by the *Rupa*, and *Arupa*,
" the *Burma* writings are ſilent: they only in general
" ſtate, that the happineſs of each habitation is double
" of that in the one immediately below. It is alſo
" ſtated, that the lives of the inhabitants of each *bon*,
" endure four times as long as thoſe of the next infe-
" riour ſpecies. According to this ratio, the duration
" of the liſe of all the beings above *Tavateinza* in-
" creaſes: ſo that the higheſt rank of *Nat*, called *Para-*
" *neiminatavaſſanti* live 576 millions of years. The
" prince of theſe *Nat*, whoſe name is Mannatmen,
" has dominion over all the *Nat* of the other inferiour
" habitations, and declares war againſt any new god
" on his firſt appearance. All his ſubjects being drawn
" out in battle array, occupy a ſquare of eighteen

 juzana:

* Theſe *Nat* are evidently the *Aſſura Loka*, or demons of the *Brahmens*, who place them at the ſouth pole, while the north is occupied by the *Devas* or *Deities*.

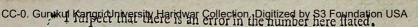
† Filial reſpect ſeems to be almoſt equally ſtrong among the *Burmas* as among the *Chineſe*. No *Burma* is permitted to ſit on a ſeat equally honourable with that of his father: if the father is on a chair, he muſt ſit on the ground; if the father is on the ground, the ſon muſt ſit behind. The ſon does not eat in his father's preſence, and rarely ſpeaks, except to anſwer a queſtion.

" *juzana**: he himſelf being in the center, is ſeated on
" an elephant 250 *juzana* high."

" XXI. The *Burma* writings, as has been ſaid, make
" no mention of the kind of happineſs enjoyed by the
" *Rupa* and *Arupa:* but if we may judge from the
" length of their lives, they muſt be infinitely more
" happy than the *Nat.* Of the three habitations, which
" form the firſt *Zian*, the firſt *Rupa* live twenty-one
" *Andrakat;* the ſecond live thirty-one *Andrakat;* and
" the third live one *Aſſemchiekat.* Of the three abodes
" in the ſecond *Zian*, the *Rupa* of the firſt live two
" *Makakat;* of the ſecond, four *Makakat;* and of the
" third, eight. Again, of the abodes which are called
" the third *Zian*, the *Rupa* of the firſt live ſixteen
" *Makakat;* of the ſecond, thirty-two; and of the third,
" ſixty-four *Makakat.* Of the two abodes forming the
" fourth *Zian*, the *Rupa* live 500 *Makakat.* Of theſe
" five remaining abodes of *Rupa*, which are placed
" perpendicularly above one another, the inhabitants
" of the firſt live one thouſand, of the ſecond two thou-
" ſand, of the third four thouſand, of the fourth eight
" thouſand, and of the fifth ſixteen thouſand *Makakat.*
" Again, the life of the inhabitants of the loweſt order
" of *Arupa* laſts for 20,000 *Makakat*, of the ſecond for
" 40,000, of the third for 60,000, and of the higheſt for
" 84,000 *Makakat.*

" The happineſs and length of the lives of beings
" increaſing in proportion as their habitations are
" higher, a greater and greater elevation will be pro-
" cured by perſons after death, in proportion as during
" life they have performed more good actions, and as
" they have poſſeſſed more liberality in beſtowing
" charity."

" XXII. I am now to give an account of the abodes
" of wretchedneſs, of the puniſhments inflicted on their
" inhabitants,

* I ſuſpect that there is an error in the number here ſtated.

" inhabitants, and of the duration of their exiſtence.
" There are four ſtates of *Apé* or miſery. 1. That of
" animals, whether they live in the water, or on the
" earth, or whether they fly in the air: for, according
" to the *Burma* writings, the ſtate of all animals in-
" ferior to man, is a ſtate of miſery. 2. That of the
" wretched beings called *Preitta*. 3. The ſtate of
" thoſe called *Aſſurighe*. 4. The ſtate of the inhabi-
" tants of *Niria*, which may properly be tranſlated
" hell. Of theſe beings I ſhall treat in order.

" The *Burma* ſcriptures mention nothing concern-
" ing the wretchedneſs or length of life of animals.
" Some doctors however aſſert, that domeſtic animals
" follow the fortunes of mankind: and that, when
" men live long, they do ſo likewiſe. Theſe doctors
" alſo ſuppoſe, that animals not domeſtic have a ſhort
" or a long life, in proportion to the merit of their
" actions in a former exiſtence. It is however, ſay
" they, found by experience, that the elephant lives
" ſixty years, the horſe thirty, the ox twenty, and the
" dog ten. By the ſame doctors it is alledged, that
" lice, and other ſimilar inſects, live ſeven days; and
" they confirm this by a ſtory related in their books.
" A certain prieſt conceived a violent liking for a
" beautiful robe, which he preſerved moſt carefully
" from being worn. It ſo happened, that when this
" prieſt died, he was immediately changed into a louſe,
" which took up its reſidence in the favourite robe.
" According to cuſtom, the other prieſts divided a-
" mongſt them the effects of the deceaſed, and were
" about to cut up the robe, when the louſe, by his fre-
" quent going and coming, and by his extraordinary
" geſtures, ſhowed, that the diviſion of the robe
" would be by no means agreeable to his feelings.
" The prieſts being aſtoniſhed, conſulted God on
" the occaſion, who commanded, that they ſhould
" delay for ſeven days their intended diviſion, leaſt
" the louſe ſhould be enraged, and on that account

 " deſcend

"descend into a state of misery yet more wretched.
"Those men are changed into animals who do not
"refrain their tongues, or the inordinate motions of
"their bodies or minds, and who neglect to bestow
"alms."

"XXIII. The second miserable state of existence
"is called *Preitta*, of which there are various kinds.
"Some *Preitta* are nourished on spittle, excrement,
"and other foul substances, and dwell in public halls,
"cisterns, and sepulchres. Others, wandering about
"in woods or deserts, half wasted by hunger and
"nakedness, pass the whole duration of a world in
"howling and groans. Some by fiery whips are forced
"to plough the earth with red-hot iron. Some, who
"live on their own flesh, with their nails tear to pieces
"their own limbs. Others, who are a *gaut* in size,
"have a mouth no larger than the eye of a needle;
"hence are they tormented with perpetual hunger.
"Others are within on fire, so that at times the flames
"even burst through their bodies. There is still
"another species of *Preitta*, who by day enjoy the
"pleasures of the *Nat*, but by night are tormented
"as above. Those in a future life are changed into
"*Preitta*, who during this give no daily provisions
"to the priests, who do not supply them with cloath-
"ing, who corrupt their manners, or who offer
"violence to their persons, who give abusive language
"to the observers of the law, who are avaricious, &c."

"XXIV. The third miserable species of beings,
"called *Assurighe*, reside chiefly in the roots of certain
"mountains far remote from the habitations of men.
"Some of them however dwell in woods, and on the
"desert coasts of the sea. They are subject to punish-
"ments nearly the same with those of the *Preitta*.
"There is a kind of intermediate species, called
"*Assurighe-Preitta*. These beings have bodies three
"*gaut* in length, but as emaciated as a corpse deprived
"of flesh and blood. Their eyes project from the sockets
"like those of a crab: and their mouths are on the
"crowns

" crowns of their heads, and as ſmall as the eye of a
" needle, ſo that they are tormented with hunger.
" Thoſe are ſubject to this puniſhment, who in their
" quarrels ſtrike with ſticks, or deſtructive weapons.

" The duration of theſe three *Apé* is not fixed, but de-
" pends on the lot of evil actions, as the *Burma* doctors
" ſpeak. " If this lot be heavy, the miſery will con-
" tinue long: but if light, the unhappy beings will be
" the ſooner relieved from puniſhment:" that is to ſay,
" according to the greater or leſs atrocity of the ſins
" committed, the puniſhment will be of longer or
" ſhorter duration."

" XXV. *Niria* is the fourth miſerable condition;
" and its habitation may be properly called the infer-
" nal regions. Theſe are placed by the *Burmas* in the
" depths of this ſouthern iſland *Zabudiba*, in the midſt
" of the great rock *Sila pathavy*, and conſiſt of eight
" great hells. Each great hell towards the four car-
" dinal points has four gates, leading to as many
" ſmaller hells: ſo that every great hell communicates,
" with ſixteen ſmaller ones, and beſides is ſurrounded
" to the right and left by 40,040 ſtill ſmaller. A ſpace
" of 10,000 *juzana* ſquare is occupied by each of the
" large hells, and its dependant ſmall ones.

" Before the gate of each great hell ſit the judges,
" who condemn the guilty according to the weight of
" their lot of evil deeds. Theſe judges are ſelected
" from the *Nat Aſſura*: but their office does not pre-
" vent either them or their aſſiſtants from enjoying
" the pleaſures of their happy companions. Theſe
" judges have no occaſion to examine into crimes of a
" very atrocious nature: the weight of theſe, ſay the
" *Răhāns*, ſinks the perpetrators at once into hell.
" Theſe *Imamen* or judges then determine the puniſh-
" ments for ſmaller crimes. The worſhippers of
" Bouddha, when beſtowing alms, or performing
" other

" other good actions, commonly use the ceremony
" of pouring a little water on the ground, which is
" explained to be emblematical of their wishing to
" participate the merit of good works with other be-
" ings. Those criminals, who during life performed
" this ceremony, the *Imamen* will mildly raise up, will
" assuage their fears, and exempt from the torments
" of hell, unless they have been guilty of any great
" crimes. But to those who have neglected this cere-
" mony, the *Imamen*, with a horrible countenance,
" will declare, that they have done no good action;
" then the criminals, all trembling, will dare advance
" no excuse: but the demons will advance, and snatch
" them away to punishment."

" XXVI. THE duration of these punishments, as
" has been already said, is not fixed and determined,
" but depends upon the lot of bad actions. The
" *Burma* writings enumerate four of these lots: the
" first they say is heavy, the other three light. The
" evil deeds, which after death produce the heavy
" lot, are chiefly five: 1, matricide; 2, parricide; 3,
" slaying a *Răhān*; 4, striking a God; (thus DEVA-
" DAT, the name by which the *Răhāns* know JESUS,
" incurred the heavy lot by throwing a stone at GO-
" DAMA;) 5, exciting dissentions among the *Răhāns*.
" Those who have been guilty of such crimes, for the
" whole duration of a world, suffer, in one of the
" great hells, the punishment of fire, and other cruel
" torments. This lot is called heavy, and the first,
" because those who die under its weight, enjoy no
" benefit from the good actions they may have per-
" formed; at least, till the whole time of their punish-
" ment has expired. But even more severe than this
" is the lot of those called *Deitti*, or those impious
" persons who have discredited the evidences of GO-
" DAMA, or of some former God: who, contrary to
" the express doctrine of all Gods, deny *Nieban*, and
" the transmigration of men into animals, or into su-
" perior beings, according to the merit of their actions;
" who

" who teach, that there is no merit in beſtowing alms,
" or in performing the good works commanded by
" God; or who adore the *Nat* preſiding over the
" woods and mountains. All ſuch perſons, if they
" obſtinately perſiſt in their infidelity, and irreligon,
" will be tormented, not for the duration of one world,
" but to all eternity. After the world is deſtroyed,
" they will paſs to other places, or be eternally pu-
" niſhed in the air. But if obſtinacy be not added to
" their crimes, the puniſhment will ceaſe at the end
" of the world.

" Of thoſe lots which are not heavy, the firſt is
" that which receives a reward or puniſhment after
" death; and ſuch crimes are puniſhed in one of the
" great hells, according to their greater or leſs atro-
" city.* After this comes the lot of habitual ſins;
" and though theſe ſins be not atrocious, yet if they
" have become habitual, they occaſion a lot, which
" induces a puniſhment in one of the ſeven great hells;
" but not in that named the great *Aviri*. The fourth
" lot ariſes from wicked deſires, and is not puniſhed
" in any of the great hells, but in ſome of the ſur-
" rounding ſmall ones."

" XXVII. Before we mention the puniſhments
" which the damned ſuffer, it muſt be premiſed, that
" of the eight great hells, four are called *Aviri* or hot,
" and four *Logantret* or cold hells: becauſe in theſe
" laſt the damned ſuffer intenſe cold. The infernal
" days and years alſo differ from thoſe on earth: for
" every day in the great hells is equal to a thouſand
" terreſtrial years; whilſt in ſome of the ſmall hells it
" equals 600 years, in others 700, and in others 800."

" 1*ſt*. Those who are iraſcible, or cruel, quarrel-
" lous,

* The original here is very obſcure. I have tranſlated it, as nearly as I could, word for word: but I am not ſatisfied about the meaning. Perhaps it is, that ſuch crimes induce this lot, as are of a nature not to require the determination of the *Imamen*: and ſuch, as that their oppoſite virtues lead to immediate high rewards?

"lous, or drunken, who are diſhoneſt in deed, word, "or thought, or who are laſcivious, will, after death, "in the great hell *Seinzi* be torn to pieces with glow- "ing hot irons, and then expoſed to intenſe cold: "after a time their limbs will again unite, and again "will they be torn aſunder, and expoſed to the cold: "and this alteration of miſery will endure for 500 in- "fernal years.

"2*dly*. THOSE who either by action or ſpeech ridi- "cule their proper parents, or magiſtrates, or *Răhāns*, "or old men, or the ſtudious of the law; thoſe who "with nets or ſnares entrap fiſh, or other animals; "all thoſe will be puniſhed in the great hell *Chalaſot* "for 1,000 infernal years: on a bed of fire they will "be extended, and like ſo many trunks of trees with "burning iron ſaws and hooks they will be cut into "eight or ten pieces.

"3*dly*. THOSE who kill oxen*, ſwine, goats, or "other ſuch animals; and who are by profeſſion hun- "ters †; warlike kings; miniſters and governors who "oppreſs the people; all ſuch will in the great hell "*Sengata* be ground between four burning mountains "for 2,000 years.

"4*thly*. THOSE who do not mutually aſſiſt their "neighbours, and who on the contrary deceive and "vex them; thoſe who kill animals by immerſing "them in boiling oil or water; thoſe who are drunk- "ards,

* THE preſent *Burma* monarch, who enforces religious duties with conſiderable rigour, in a very particular manner puniſhes the death of the cow kind. The *Rahans*, it is evident, look on the killing of all animals with equal abhorrence; and it is probable, that the *Brahmens* have in this inſtance influenced the councils of the prince, and have deprived his ſubjects of a moſt wholeſome and invigorating aliment.

† VENISON is the only meat permitted to be ſold in the markets of the *Burma* empire, a privilege allowed to hunters, moſt probably on account of the Royal family. The hero ALOUNGBURA, the deliverer of his country, and father of the king, was originally a hunter. He had the good ſenſe not to be aſhamed of his origin, and, when he firſt roſe into notice, aſſumed the name of *Moutzobo*, or the hunter-captain, a name which he beſtowed on his favourite reſidence, when his merit and fortune had induced his ſubjects to call him the lord of the world.

" ards, or who commit indecent and forbidden ac-
" tions; thofe who difhonor others; all fuch will have
" their bowels confumed by fire entering their mouths.
" This punifhment will laft for 4,000 infernal years.

" *5thly.* Those who take any thing contrary to the
" exprefs will of the proprietor, whether it be by
" theft, guile, fraud, or by open violence; thofe
" magiftrates who receive gifts, and in confequence
" decide caufes unjuftly; thofe officers who, after
" having poffeffed themfelves of an enemy's country,
" deftroy the inhabitants; thofe who deceive in fcales,
" weights, or meafures, or who by any other unjuft
" means appropriate to themfelves the goods of others;
" thofe who injure the property of the *Răhāns*, or
" temples; all fuch, for the fpace of 8,000 infernal
" years, will be punifhed in the great hell *Maháro-*
" *ruva* by fire and fmoke, which will enter by the
" eyes, mouth, and other openings, and wafte away
" their whole bodies.

" *6thly.* Those who having killed hogs, deer, or
" fuch like animals, fkin them, roaft their flefh, and
" eat it; thofe who make arms; thofe who fell hog's
" flefh, or fowls, or wine, or poifon; thofe who burn
" towns, villages, or woods, fo that the animals liv-
" ing there perifh; thofe who kill men by poifon,
" arms, or incantations, or who kill animals by nets
" or gins; all thefe after death for fixteen thoufand
" years will in the great hell *Tapana* be tumbled
" down headlong from a lofty burning mountain,
" there being transfixed on an iron fpit, they will be
" cut and torn by the demons with fwords and
" fpears.

" *7thly.* The *Deitti*, or infidels, who have been
" already mentioned, will in the hell *Mahatapana* be
" firft fixed with their heads downwards, and then
" pierced with hot fpits as large as palm trees.

" *8thly.*

" 8*thly*. Parricides, matricides, and ſuch as have
" the heavy lot, will be puniſhed for the whole dura-
" tion of a world in the terrible of all hells *Mahaviri*,
" the pavement of which nine *juzana* in thickneſs is of
" red hot iron, and emits the moſt horrible ſmoke,
" and the moſt piercing flames."

" XXVIII. Of the ſmaller hells, which ſurround
" the eight great ones, and which are called by one
" common name *Uſſantrek*, ſome are mentioned by
" particular names. In the excrementitious hell, for
" inſtance, there are worms as large as elephants,
" which bite the damned while they are floating in
" excrement. There is alſo a hell of burning aſhes.
" In the hell of ſwords the damned are torn in pieces
" by the knives, ſwords, and other ſharp inſtruments,
" among which they are rolling. The damned in the
" hell of hooks have their lungs, livers and bowels
" torn out by theſe cruel inſtruments: and in the
" hell of hammers they are miſerably beaten with red
" hot implements of that kind. There is a hell of
" thorns and prickles, a hell of biting dogs, a hell of
" crows and vultures, which with their beaks and
" claws tear aſunder the fleſh of the damned. There
" is a hell in which the damned are obliged conſtantly
" to aſcend and deſcend a tree named *læppan*, and
" armed with the ſharpeſt thorns: another in which
" they are forced to drink putrid gore; and ſtill another,
" where fiends beat, whip, and torment the damned.

" In the ſmaller hells are puniſhed thoſe who did
" not honour their parents, magiſtrates, and old age;
" who took wine or inebriating drugs; who corrupted
" the waters of lakes or wells; who deſtroyed highways;
" who were fraudulent and deceitful; who ſpoke roughly
" and angrily; who ſtruck others with their hands or
" ſticks; who paid little attention to the words of pious
" men; who afflicted others; who were ſpeakers of ſcan-
" dal,

" dal, paſſionate, envious, undervaluers of their neigh-
" bours; who uſed abuſive language; who confined
" their fellow creatures with chains, bonds, or fetters;
" who admitted any forbidden thing in their words,
" actions or deſires; and who did not conſole the ſick
" with ſoothing words. All theſe crimes will be
" puniſhed in the ſmaller hells, and that in propor-
" tion to the atrocity of the deed, and the frequency
" with which it has been repeated.

" Besides theſe places of puniſhment there is
" another hell, which may be compared to an immenſe
" kettle filled with melted braſs. The damned are
" forced to deſcend to the bottom of this kettle, then
" to riſe to the ſurface, and 3,000 years are conſumed
" in each deſcent, and in each aſcent. To this hell
" are condemned the ſenſual perſons, who corrupt
" the wives, the daughters, or the ſons of others;
" and who, during the courſe of their lives, neglect-
" ing to obſerve the holy days, or to give alms, paſs
" their time in feaſting, drunkenneſs, and laſcivious
" enjoyments.

" It has been already mentioned, that the equila-
" teral ſpaces, which are ſuppoſed to be in the inter-
" ſtices of the different worlds, are full of water in-
" tenſely cold. The *Burma* writings aſſert, that theſe
" are ſo many hells, to which thoſe are condemned
" who give offence to their parents, or to the ſtrict
" obſervers of the law. Theſe people after death get
" bodies three *gaut* in length, with crooked nails on
" their hands and feet: ſometimes like bats they creep
" through the caves, and dark caverns in the deep
" receſſes of the mountains: at others they hang to-
" gether on trees like a hive of bees, mutually tor-
" menting and abuſing themſelves with the moſt dire-
" ful words; then being inſtigated by a cruel hunger,
" they tear each other limb from limb. The limbs
" falling into the cold water are diſſolved like ſalt:
" but the parts of their bodies being again united by
" the

" the power of fate, they repeatedly undergo the ſame
" torments.

" Having thus explained the ideas of the *Burmas*
" concerning the various *bon*, or habitation, of miſery
" and happineſs, before we proceed any further, it is
" neceſſary to ſtate, that the beings which inhabit
" even the higheſt of theſe abodes, may, on account of
" bad actions, ſink into the infernal regions; or on
" account of their good ones, may be raiſed to a higher
" rank: but it is only in this iſland *Zabudiba* that
" *Nieban*, the moſt perfect of all ſtates, can be ob-
" tained. To arrive at *Nieban* a perſon muſt ſee a
" god, and hearken to his diſcourſes and evidences:
" and it is only in *Zabudiba* that the gods ariſe.
" There are ſome *Burma* doctors indeed, who aſſert,
" that in this iſland only beings can deſerve to riſe to
" a ſuperiour, or to ſink into an inferiour abode."

A TOPOGRAPHICAL DESCRIPTION OF ZABUDIBA.

" I have ſaid, that the *Burmas* allow the diameter
" of this iſland, which we inhabit, to be 10,000 *juzana*.
" From this extent they ſubtract 3,000 for woods and
" deſerts, 4,000 for waters, and ſuppoſe 3,000 to
" remain as a habitation for mankind. I ſhall now
" explain their ideas concerning the topography of this
" abode: but my readers will be much diſappointed,
" if they expect any thing like an accurate deſcription
" of the earth, or of its diviſions into kingdoms and
" provinces. For in the ſame manner, as what I have
" already delivered as the opinions of the *Burmas*
" concerning the univerſe, are nothing but vain,
" chimerical, and monſtrous fables; ſo what they relate
" concerning the iſland *Zabudiba*, never exiſted, unleſs
" in the invention of Godama, or in the crude con-
" ceptions of his commentators. It is true indeed, that
" in the *Burma* writings mention is made of 101 nations,
" which are ſaid to inhabit *Zabudiba*, and its dependant
" ſmall iſlands: but of all the nations which are
" known really to inhabit the earth, we find none men-
" tioned

" tioned as a part of the one hundred and one, except
" the *Chinese*, *Siamese*, and the inhabitants of *Tavay*,
" *Pegu*, *Laos*, *Cussay*, and *Arakan*."

Thus Sangermano prefaces his account of the *Burma* geography: but I think some farther explanation necessary. The reader will soon perceive, that the missionary is entirely right with regard to the imperfect and absurd nature of the *Burma* topography of *Zabudiba*, of which the accounts seem evidently to have been introduced from *Hindustan*, along with the religion and laws of Bouddha, and of Menu: but I doubt not, that some parts of these accounts are derived from an observation of nature. I am also inclined to think, that he is rather severe on the knowledge which the *Burmas* possess of the geography of at least their neighbourhood. I found many of the *Burmas* who were very intelligent, and well informed, concerning the situation of the different parts of their extensive empire; who were not at all deficient in a knowledge of the neighbouring states; and who were very curious to know the situation of those at a greater distance. They at once comprehended the nature of our maps; and some of them could make delineations of their own country, which, with a considerable degree of neatness, were sufficient to give a tolerable idea of the course of rivers and mountains, and of the situation of towns, lakes, and provinces. I was informed, that, in the hall of the grand council in the palace of *Amrapura*, the king keeps a general map of his dominions, which has been corrected by comparing it with the various expeditions which the present royal family have undertaken, and with the lists of cities and villages, which the governors of provinces are annually obliged to transmit to court: and in these lists is given an accurate account, or one pretended to be so, of all the houses and male inhabitants in each district. Merchants and travellers put down in their books the names of all the places on such routes as they frequent, with their estimated distances: some such itineraries, and many of their delineations, I

have communicated to Sir JOHN SHORE: and if my ſtay in the country had been longer, I make no doubt, but that I could have procured ſeveral of the liſts tranſmitted to court by the governors of provinces.

FOR the ſake of the curious I ſhall here tranſcribe the liſt of the one hundred and one nations with which the *Burmas* are acquainted, uſing the mode hereafter to be explained of expreſſing the *Burma* writing by *Roman* characters, and adding a ſhort explanation. From this I think it will appear, that the liſt is formed from a real knowledge of the nations, and not from the idle fables brought from *Hinduſtan*, and explained by the miſſionary. It is true, that of many of theſe names I can give no account; but that will by no means imply, that no ſuch nation exiſts; for who would think that *Tarout* meant a *Chineſe*, or *Kula* an *European*?

Loo mioo tăwă tăbă. *Of men the nations one and an hundred.*

1 *Myam-mā*, The proper name of the *Burmas*.

2 *Tă-lain*, The inhabitants of the kingdom of *Pegu*.

3 *Yun*, The inhabitants of *Sayammay* or *Chiamay*.

4 *Yoo-dă-yā*, The *Siammeſe*.

5 *Sham*, The grand *Siams* of M. DE LA LOUBERE.

6 *Layn-ſayn*, The inhabitants of lower *Laos* or *Lanjans*.

7 *Gium*,
8 *'Kiun*, } Theſe are two ſmall rude tribes living in hilly and woody tracts in the *Sham* country.

9 *Dha-nu*, A rude tribe inhabiting the banks of the river *Thalluayn*, north from *Martaban*.

10 *Kă-rayn*, A rude tribe inhabiting the woods of the *Pegu* kingdom, and thoſe near *Prone*.

11 *Ku-lā*,

11 *Ku-lā*,	The *Europeans*, or the natives of the weſt.
12 *Pă-deik-kă-rā*,	Another weſtern nation; but which, I could not learn.
13 *Dă-way*,	The natives of *Tavay*.
14 *Rœk-'kaik*,	
15 *Ayn-giay*,	Said to live between *Cuſſay* and the *Kiaynduayn*.
16 *Tă-nayn-thā-rē*,	The natives of *Tenaſſerim*.
17 *Sō-gē*,	Hermits.
18 *Kieen-zout*,	Said to live near *Cuſſay*.
19 *Tă-rout*,	The *Chineſe*.
20 *Tă-rœk*,	The *Tartars* governing *China*.
21 *Layn-thœk*,	Said to be an independent people living near *China*.
22 *Pan-thè*,	Inhabitants of the mountains north-eaſt from *Ava*, who pickle the tea leaves ſo much uſed in the *Burma* kingdom.
23 *Pălè*,	(ditto, bracketed)
24 *Pă-laung*,	(ditto, bracketed)
25 *Thout-tan*,	
26 *'Zū-laung*,	Said to live ſeven days journey weſt from *Ava*.
27 *'Zū-'lē*,	Live north from the laſt mentioned people.
28 *Tă-'ba-thē*,	
29 *Hă-rē*,	
30 *Zan-dā*,	*Zandapūre* is the name of the capital of *Laos*.
31 *Măl-lā*,	
32 *Să-wā*,	
33 *Să-wē*,	
34 *Zeim*,	
35 *Lă-hu*,	
36 *Lă-myayn*,	
37 *Zayn-g'yan*,	
38 *Kian-dan*,	
39 *U-thă-'bă*,	

40	*Lă-pĕ-kū,*	
41	*Myoun,*	A people inhabiting the hills between *Arakan* and *Chittagong*, called by the *Bengalese*, *Moroong*.
42	*Goun,*	
43	*Pat-tu,*	The *Malays* of *Acheen*.
44	*Zū-ďa,*	
45	*Nă-ba,*	
46	*'Bū-ďaung,*	
47	*Layn-yaung,*	
48	*A-thā,*	
49	*Payn-g'ā,*	
50	*Meit-zeit,*	
51	*Lă-hœk,*	
52	*Rè-mē-duœk,*	
53	*Kan-zœk,*	
54	*Taung-thū,*	
55	*Pyu,*	
56	*Kŏ-ză,*	
57	*Kam-yan,*	
58	*A-myayn,*	A *Burma* city of this name.
59	*Kă-kiayn,*	A wild people on the frontiers of *China*.
60	*Thouk-kăďa,*	A *Siammese* city of this name.
61	*Lă-'ba,*	
62	*Shein-ďū,*	
63	*Rè-dū,*	
64	*Payn-wā,*	A *Burma* city of this name.
65	*Meiz-'zā,*	
66	*La-wa,*	A very numerous tribe inhabiting the woods to the east of the *Martaban* river.

67 *Rè-'zun,*

67 *Rè-'zun,*
68 *'Zayn-té,*
69 *Peith-thè,*
70 *Taz'-zoo,*
71 *Thē-hò,* — *Ceylon.*
72 *Sā-wē,*
73 *Rŏ-gā,*
74 *Keen-ză,*
75 *Mā-lein,*
76 *Sŏ-rā,*
77 *Zè-ďout,*
78 *Să-hout,*
79 *Thăræk,*
80 *Thæk,* — The people inhabiting the eaſtern branch of the *Naaf* river, who have ſent a colony to the upper parts of the *Curnaſooly*, and who are called by the *Bengaleſe*, *Chatn* and *Chatnmas.*
81 *Dŏ-rā,*
82 *Taung-rā,*
83 *Kă-thee,* — *Cuſſay* or *Meckely.*
84 *Miæk-nā-mee,*
85 *Kiee,*
86 *Poun-nā,* — The *Brahmens.*
87 *Bŏ-dhĕ,*
88 *Eim-bát,*
89 *Kă-dū,* — A tribe between *Martaban* and *Siam.*
90 *Lă-rŏ,*
91 *Thă-doo,*
92 *La-ngoun,*

93 *Lă-rouk*,
94 *Pă-gnā*,
95 *Biā-bā*,
96 *Ram-man*,
97 *Kiayn*, A numerous tribe in the mountains separating *Ava* from *Arakan*.
98 *Pyŏ*,
99 *Lă-waik*, The capital city of *Cambodia*.
100 *Layn-nat*,
101 *Oo-byee*,

But let us now return to the deſcription of *Zabudiba*, as extracted by the miſſionary from the *Burma* writings.

" XXIX. In the moſt northern parts of *Zabudiba*, " the *Burma* writers place an immenſe mountain, of " which the perpendicular height is 500 *juzana*, and " the extent it occupies is in circumference 9000 " *juzana*. It is named *Hemavunta*, on account of the " perpetual ſnow with which it is covered*; and " conſiſts of 14,000 ſmall mountains, one piled on " another. In the declivities of this mountain are " ſeven lakes, which receive the water produced by " the melted ſnow. Of theſe lakes the depth is fifty " *juzana*, and the circumference 150. From theſe " lakes ſpring five great rivers, one of which is named " *Gunga*; and from theſe rivers ariſe five hundred " ſmaller ſtreams. On *Hemavunta* grow various " ſpecies of ſandal wood: on this mountain live many " *Nat* of the kind named *Zadumaharit*: and here are " found the kings of elephants, and of horſes, with many

* This *Hemavunta* is evidently the mount *Imaus* or *Emodus* of the antients, or the *Himaleh* or *Himalaya* mountains of the preſent *Hindus*; all the three names deriving their origin from the phenomenon of ſnow, ſo wonderful to the inhabitants of tropical regions. Plin. Hiſt. Nat. L. 6, c. 17.—Rennell's Memoir, p. 126.

"many other animals not to be found near the habi-
"tations of man. Of theſe lakes the moſt celebrated
"is called *Anaudat**, which is ſurrounded by five
"mountains. Theſe mountains, which are five
"hundred *juzana* high, incline their lofty ſummits
"over the lake, and prevent the ſun's rays from
"reaching its waters, except for a ſhort ſpace annually,
"when the ſun is in the inner road.

"The bowels of one of theſe mountains contain
"moſt copious mines of gold, and even its ſurface is
"thickly covered by that precious metal. The ſurface
"of the ſecond mountain is covered with ſilver, and
"it contains alſo rich ſilver mines. The third contains
"mines of diamonds and rubies, and theſe ſtones
"glitter on its ſurface. The fourth of theſe moun-
"tains is alſo impregnated with all manner of jewels;
"and the fifth is covered with ſandal-wood, clove
"and nutmeg trees. In this aromatic mountain are
"three arched habitations; one of gold, another of
"ſilver, and a third of carbuncle; and before theſe
"abodes grows a flowering tree one *juzana* high.
"In this delightful place dwell certain hermits, and
"men of eminent ſanctity and morality, who appear
"in this world when the law of any god ceaſes. For
"the *Burma* writings declare, that when a god appears,
"and reveals his law, men are only bound to obſerve
"it for a fixed number of years after his death, at the
"expiration of which time every one is at liberty to
"follow the law of nature. Such is the brightneſs
"proceeding from theſe mountains, that it excludes
"the darkneſs of night.

"The water of *Anaudat* is limpid like cryſtal, nor
"does any foul thing live on its ſhores. Neither turtle
"nor fiſh dare ſwim in it; for the water is deſtined
"to be the drink of thoſe illuſtrious ſaints above-
"mentioned. Only ſome *Nat* giants ſport in the
"lake.

"On the eaſtern bank of *Anaudat* is the image of a
"lion's

* The name, as pronounced at *Amarapura*, ſeemed to me to be *No-wa-dat*.

"lion's head, on the ſouthern that of an elephant's, "on the weſtern that of a horſe's, and on the northern "that of a cow's: and from theſe four heads are "poured forth the ſtreams of four rivers. The water "which proceeds from the lion's mouth, after making "three turns round the lake, and mixing with the "other waters, ruſhes through the eaſtern parts of "*Hemavunta;* and after flowing through many in-"hoſpitable regions, at length falls into the eaſtern "ſea*. In the ſame manner the waters, which paſs "through the northern and weſtern mouths, after "running thrice round the lake, form two rivers; one "falling into the weſtern †, the other into the northern "ſea ‡. The water which flows from the elephant's "mouth, after turning, like the others, three times "round *Anaudat*, runs directly ſouth for ſixty *juzana*, "when aſcending a ſmall mountain, and ruſhing over "an immenſe rock, it forms another lake fifty *juzana* "in circumference; paſſing thence through a ſub-"terraneous paſſage for ſixty *juzana*, it meets a great "mountain ||, which divides it into five large rivers, "each of which has its proper name: and theſe are "the five great rivers already mentioned, of which "one is the *Gunga* or *Ganges*. § From each of theſe "five rivers proceed a hundred ſmall ones; in all five "hundred ſmall rivers. But the banks of each of the "four great rivers abound in that ſpecies of animal, "from the image of whoſe head its waters ruſh out of "the lake *Anaudat*. Thus the banks of the ſouthern "river

* This river is probably the *Yang-tſe kyang*, the greateſt river of *China*, and the ſource of which is at no great diſtance from that of the *Ganges*.

† The weſtern river is no doubt the *Oxus Jihon* falling into the *Caſpian* Sea; beyond which it is probable, that the *Hindus* in the age of BOUDDHA knew nothing.

‡ This is probably the immenſe river *Irtis*, of which the ſource is about 1,000 miles north from that of the *Ganges*.

|| Probably *Sewalick*.

§ To me this appears evidently to be an ill-digeſted account of the rivers, which fall into the head of the Bay of *Bengal*. The authors of the ſyſtem conceived them all to come from one ſource, but that, by the intervention of the *Sewalick* mountains, they were ſeparated into the form which they aſſume in *Hinduſtan*.

"river abounds in elephants, of the eastern with lions, "of the northern with oxen, and of the western with "horses*."

This fable was at *Amarapura* often mentioned to me. The names of the five hills surrounding *Anaudat* are, *Sudasana*, *Pathoda*, *Gandomadena*, *Kelasapa*, and *Seitera*. The five branches of the elephant or southern river are *Gaynga*, *Yemuna*, *Mohé*, *Therapoo*, and *Rawadé*. I am convinced that this fable, not sufficiently understood, has been the foundation of the idea represented in many maps, of there being a lake *Chiamay*, from whence the *Ganges*, *Burrampooter*, *Ayrawade*, and other great rivers, take their rise. This opinion was confirmed by the mention of *Chiamay* made by M. De La Loubere; but the city so named by that excellent author, (as the maps I presented to Sir John Shore clearly prove,) is the capital of a kingdom at present subject to the *Burmas*, and situated on the river of *Siam*, which arises on the frontiers of *China*.

This topography, mentioned in the books of the *Răhāns*, however incorrect, in my opinion clearly points out the country in which the doctrine of Bouddha commenced. It must have been on the banks of some of the brances of the great southern river: and the northern parts of *Hindustan* are the most probable. Bouddha's knowledge of geography must have been very confined; but as we approach towards the place above mentioned, it assumes a form somewhat more particular and rational. From the accounts of the mountains, snow, seas, and rivers, given by his followers,

* By this account the *Ganges* should not come through the cow's mouth, but through the elephant's. The *Brahmens* apparently have misconceived this part of the fable; and the rock called the *Cow's mouth*, seems, as we extend our knowledge of geography, to elude our search. (Rennell's Memoir, p. 371). The learned Paulinus has, as I have already mentioned, (Note ‡ in p. 175), confounded the fables of the mountains *Mienmo* and *Hemavunta*. Perhaps in this he has followed the *Brahmens*, from whose works chiefly his ideas seem to have been taken: and the *Brahmens* may differ from the *Rahans* as well concerning the situation of these mountains, as concerning the cow's mouth.

lowers, we may conclude that he was a near neighbour of *Thibet:* we may ſuppoſe, that he had ſeen the ſnowy mountains, and had heard of the great rivers running from thence into the *Siberian*, *Chineſe*, and *Caſpian* ſeas: and from his particularizing the branches of the ſouthern river, we may conclude, that he dwelt on its banks. Had he been a native of *Thibet*, he never could have formed the groſs miſconception of the common origin of the *Bengal* and *Oude* rivers, nor of their manner of penetrating through the *Sewalick* mountains. I find that ſome perſons* have alledged BOUDDHA to have been a native of *Aria* or *Koroſan*. On what reaſons this opinion is ſupported, I have not learned: but I think very ſtrong ones will be required to invalidate this topographical argument, for his having been a native of the north of *Hinduſtan*. Upon conſulting a *Brahmen* of *Bengal*, who is acquainted with the *Sanſcrit* language, he ſays, that BOUDDHA was king of *Rahar*, which, according to him, is bounded on the eaſt by the river of *Moorſhedabad*, and from thence extends to *Benares*, being nearly the ſame with the ſoubah of *Behar*†.

As far as relates to *Hinduſtan*, the *Brahmens* have adopted very nearly the geographical ideas of their predeceſſors the *Răhāns*‡: but having come from *Egypt*, their knowledge of the weſtern parts of the world

* *Encyclopedia Britannica*, article *Samanians*. This opinion may have originated from two paſſages in the fathers with which I have met in PAULINUS, (*Mus. Borg.* pag. 186 187.) και εκ Βακτρον των Περσικων Σαμαναιοι CYRILL. ALEX. *Tom.* 2. pag. 133. και Σαμαναιοι Βακτρων CLEMENS ALEXAND. STROM. lib. 1, pag. 359. The knowledge which the fathers of the church had of the ſect of BOUDDHA, being chiefly obtained from ſuch of the *Samanians* as reſided in the *Perſian* empire, and who muſt have entered *Iran* from *Hinduſtan* by the common route of *Bactria*, may readily account for theſe two paſſages.

† BUDDHA, the ſon of JINA, according to the *Bhagawat*, would appear at *Cicata*, which by a learned *Hindu* was ſaid to mean *Dhermaranga*, near *Gaya*, (*Aſiatick* Reſearches, II. 122.) But whether this BUDDHA be the ſame with the author of the *Burma* religion I do not know.

‡ See a treatiſe by the learned Mr. BURROWS in the *Aſiatick* Reſearches,

world is much more extenſive: nor need we require any further proof for their having come from *Egypt*, than their compleat knowledge of the *Nile*, which has been ſo ingeniouſly illuſtrated by the learned Mr. WILFORD.

"XXX. NEXT to the lake *Anaudat*," continues "the miſſionary, "the moſt celebrated is that called "*Zaddan*, nearly equal in extent to *Anaudat*. In the "center of the lake, limpid water of a carbuncle colour "occupies a ſpace of twenty-five *juzana*, around which, "in concentric circles, are placed five gardens, each a "*juzana* wide. In theſe gardens grow the various kinds "of flowering trees which thrive in water. Without "the lake are fields of corn, eſculent ſeeds, gourds, "and cucumbers. Without theſe fields are gardens "containing every kind of fruit trees: ſuch as a gar-"den of plantains, producing fruit as large as an "elephant's trunk; a garden of ratans; and the like. "Laſtly, without theſe gardens are fields of cotton. "All theſe fields and gardens ſurround one another "in concentric circles, and each is a *juzana* wide. "Without theſe gardens and fields the lake *Zaddan* "is ſurrounded by a mountain one *juzana* high, "of which the ſurface is covered with gold reflecting "a light that makes the whole lake ſhine. This "golden mountain is ſurrounded by another ſix *juza-"na* high, and full of carbuncles. This again is ſur-"rounded by a mountain five *juzana* high, and emit-"ting from its ſide next *Zaddan* a ſplendor equal to "that of the ſun. Round this is another mountain "four *juzana* high, and ſhining like the moon. Ano-"ther mountain beyond this ſparkles like cryſtal. "And laſtly come two mountains; the one two, the "other one *juzana* high; and of both the interior "ſurfaces are black.

"To the weſt of the lake *Zaddan*, in the golden "mountain, is ſituated a celebrated cave, filled with "gold and jewels, and of which the mouth extends "twelve *juzana*. To the north is another lake, fifty "*juzana* in length, and as much in breadth. Its limp-id

"id waters nouriſh various flowering trees, and its "ſands are the minute fragments of diamonds and "cryſtals.

"Between theſe two lakes grows the great *Gnaung-"bayn**, a tree ſacred among the *Burmas*, becauſe "under its ſhade, ſay they, GODAMA received his "divine nature. Many ſmaller trees of the ſame "kind ſurround the great *Gnaung-bayn*, and under "the ſhade of one of theſe is the king of the elephants "wont to reſide. This king, from the place of his "abode, is often named the elephant *Zadda*. Eight "thouſand elephants, white, red, and black, are in "his train; and he has three queens. When he goes "into the lake, to waſh and to amuſe himſelf, he is "attended by all the 8,000; part of whom go before "and clear the way: others, while he is waſhing, "weave crowns and belts of flowers, which, on his "coming out of the water, they preſent to their king, "who thus adorned returns to the great tree: the ele-"phants then in proper order, firſt the white, then "the red, and then the black, go into the lake to "waſh themſelves: and on coming out, having adorn-"ed their bodies with flowers, they go and ſtand in "the preſence of their king. Then the black ele-"phants plucking ſome flowers from the tree, give "them to their females, who deliver them to the fe-"male red elephants, and theſe again to the white "females, who preſent them to the king, and to his "queens, that they may eat. Then the others diſ-"perſe themſelves through the woods, every one "finding his own food. And thus they daily paſs "their time. During winter they live in the great "cave above mentioned, and during ſummer under "the great *Gnaung-bayn*, which from its trunk ſends "forth 8,000 large roots, one for every elephant."

"XXXI. NEAR theſe ſame lakes, and the five others, "are ſaid to be found many extraordinary ſpecies of "wild

* *Ficus indica.*

" wild beaſts, and of birds: and among others five kinds
" of the lion that frequents certain great foreſts. The
" moſt celebrated of theſe is the lion *Chalaraſi*, whoſe
" throat, legs and feet, and the tip of whoſe tail, are
" red; and from the top of whoſe head a read ſtreak
" runs along his back, and deſcending by his ſides, ter-
" minates at the navel. His mane alſo is red, and his
" roar is heard through an extent of thirty-three
" *juzana*. The other animals, when they hear the
" tremendous ſound, dare not remain in their reſting
" places. His agility is wonderful; and his fleetneſs
" ſuch, that in a moment he runs a league, taking
" 140 cubits at each ſpring. When he wants to un-
" load his bowels, to enjoy a female, or to ſatisfy his
" hunger, he comes out from his cave, and roars
" thrice terribly. The echo anſwers all around for
" three *juzana*: and before the echo has ceaſed, he
" has preyed on many deer, and other animals. His
" ſtrength is ſo immenſe, that he kills the largeſt ele-
" phant with the ſame eaſe as another lion would the
" timid hare. It is further ſaid, that this lion ſleeps
" on his right ſide, with his tail under him, and with
" all his limbs properly diſpoſed. When he awakes,
" if he finds that during his ſleep he has altered this
" poſture, as a kind of puniſhment he ſtays in his
" cave all that day. There is alſo another kind of
" lion, which has a human head, but a lion's body*.
" This kind is never ſeen but when a God appears
" on earth."

" XXXII. In theſe regions dwells a king of the
" *Nat* Bommazo†. He lives for the duration of a
" whole world, and his virtue is ſaid to be great. It
" is related of this king, that at a certain time hav-
" ing paſſed through the whole world, he found all
" the habitations of the *Nat* nearly empty: for an im-
" menſe multitude of *Nat*, as well as of men, had
" aſſembled in a certain kingdom to hear Godama,
" who was then preaching a divine ſermon. Then
" great

* This lion ſeems to be the *Narſina* of the *Brahmens*.

† Page 20[illegible] of this Volume.

"great envy seized on the *Nat* king, because he ob-
"served all the *Nat* giving a preference to the holiness
"and virtue of GODAMA. With his subjects there-
"fore he went to a burial place in the vicinity of
"where GODAMA was preaching. After having rol-
"led themselves among the ashes of the dead, and
"having put round their necks broken urns, with loud
"shouts, and beating on urns in place of musical in-
"struments, they advanced to the multitude, who
"were listening to the preacher, in expectation of
"diverting the attention of the hearers from the ser-
"mon. Many, who were of a volatile disposition,
"at the unusual sound, turned aside their eyes; but the
"greater number neither looked aside, nor gave the
"smallest attention to the actions of the *Nat*; and
"GODAMA himself continued his discourse, as if no-
"thing extraordinary had happened. The *Nat* there-
"fore, perceiving that his attempt to disturb GODAMA
"was in vain, retired greatly discomposed.

"ON another occasion, when the same great *Nat*
"BOMMAZO saw GODAMA passing, he said to his com-
"panions contemptuously, and ironically, that the
"virtue of GODAMA was great; and impudently pro-
"posing to try which of them could perform the
"greatest miracle, he said, 'O GODAMA, let each of
"us hide his body, and see which will best dis-
"cover the other.' Although GODAMA was sensible
"of the childishness of such a trial, yet fearing, if
"he declined it, that both men and *Nat* would be apt
"to undervalue his divinity, he mildly indulged the
"*Nat*, desired BOMMAZO to hide himself, and at the
"same time with his hands he covered his face. The
"*Nat* prince by his power immediately changed his
"body into a particle of sand, and penetrating into
"the centre of the earth 100,000 *juzana* deep, he there
"hid himself. But GODAMA, although he had kept
"his eyes shut, perceived every thing by the power
"of his divine wisdom, and going to the aperture
"through which the grain of sand had entered, he
"covered with his left hand the opening, while with

" his right he moved the earth, and forced the *Nat*
" from his concealment. He then ſaid, ' O *Nat*, come
" forth!' The great BOMMAZO, thinking that GODA-
" MA had done this by chance, wanted again to hide
" himſelf: but GODAMA called out, and ſaid, O *Nat*,
" do you not know, that I am acquainted with the
" moſt ſecret thoughts of your heart? Come out
" then, nor any longer pretend not to hear.' Then
" the *Nat* perceiving that he could be no longer hid,
" came out, and turning to GODAMA, ſaid, ' Now, in
" your turn, conceal yourſelf.' GODAMA not con-
" verting his great body into a grain of ſand, but into
" a moſt minute and inviſible atom, ſtood upon that
" part of the BOMMAZO which is between the eye-
" brow and the eye-lid, and called out, ' Now ſeek
" me.' The BOMMAZO hearing the voice of GODAMA
" very near, immediately opened his eyes; and when
" he could ſee nothing near, he began to look every
" where after GODAMA. He ſearched the four great
" iſlands of this earth, and the two thouſand ſmall
" ones; he examined the whole ocean, and the lofty
" and inacceſſible mountains of *Zetchiavala;* from
" thence aſcending *Mienmo*, he viſited the habitations
" of all the *Nat*, the *Rupa*, and *Arupa:* he then pe-
" netrated into ſeveral other worlds; but being at
" length fatigued, and declaring himſelf overcome,
" he ſaid, ' O great GODAMA, no longer hide thyſelf,
" but appear.' Then GODAMA forthwith creating a
" magnificent ladder, compoſed of gold, and orna-
" mented with pearls, applied it to the eye of the
" great BOMMAZO; and aſſuming the natural ſize of
" his body, and the moſt ſplendid ornaments, with the
" greateſt pomp, deſcended to the ground from the eye
" of the BOMMAZO. This miracle being ſeen, the
" great *Nat* aſtoniſhed, threw himſelf at the feet of
" GODAMA, and humbly confeſſing his arrogance and
" pride, beſought pardon; and from thenceforward,
" he venerated BOUDDHA as a God: and not only during
" the life of GODAMA, but ever ſince his death, this *Nat*
" has continued to worſhip him carefully and devoutly."

"*OF THE DESTRUCTION AND REPRO-*
"*DUCTION OF WORLDS.*

"XXXIII. The *Burma* writings alledge three re-
"mote causes for the destruction of a world; luxury,
"anger, and ignorance. From these, by the power
"of fate, arise the physical or proximate causes;
"namely, fire, water, and wind. When luxury pre-
"vails, the world is consumed by fire; when anger
"prevails, it is dissolved in water; and when igno-
"rance prevails, it is dispersed by wind. The *Bur-*
"*mas* do not suppose, that a world is destroyed and a
"new one instantaneously regenerated; but that the
"destruction takes up the space of an *Assenchiekat*,
"that the reproduction takes up another, and that a
"third *Assenchiekat* intervenes between the end of
"the old world and the beginning of the new."

"XXXIV. Before we proceed to explain the
"opinions of the *Burmas* concerning the destruction
"of a world, it will be necessary to recollect, that
"they suppose sixty-four alterations in the length of
"man's life to happen during the existence of one
"world*. They suppose also, that almost the whole
"human race perishes at each of those sixty-four pe-
"riods, in which the length of life is reduced to ten
"years. And they farther suppose, that this destruc-
"tion befalling the human kind is analogous to the
"crimes which have produced the fatal abbreviation
"of life. Thus when luxury prevails amongst men,
"the greater part of them perish by hunger, thirst,
"and wretchedness: when anger is the cause of short
"life, perpetual contentions and wars arise, and the
"bulk of mankind perishes by the sword or spear:
"finally, if ignorance be the prevailing crime, man-
"kind, worn out by a horrid consumption, waste away
"to mere skeletons. After the greater part of men
"have by such disasters perished, a great rain falls,
"and sweeps away into the rivers the unburied bodies
"and filth. Then follows a shower of flowers and
"sandal-wood to purify the earth: and all kinds of
"garments

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" garments fall from above. The ſcanty remains of
" men, who had eſcaped from deſtruction, now creep
" out from caverns and hiding places, and repenting of
" their ſins, from henceforward enjoy longer lives."

THE *Burmas* not only conceive, that the length of mens' lives is extended by virtue, and ſhortened by vice; but alſo that moral excellence, eſpecially in their princes, is followed by much phyſical advantage, by a favourable change in the ſeaſons and productions of the earth, and eſpecially by a great abundance of the precious metals and ſtones*. This doctrine of the Divine Providence beſtowing phyſical rewards upon moral excellence, although perhaps in many caſes prejudicial to the good of ſociety, ſeems to have been much admired by the late emperor of *China* YONG-TCHING, who was by no means a ſuperſtitious prince, but appears even to have rejected all the revelations introduced by various ſects into his dominions. In conſequence of ſome political intrigues of the *Jeſuits*, as it is commonly ſuppoſed, he had baniſhed the miſſionaries, which no doubt gave great uneaſineſs to many of their converts. Two governors of provinces endeavoured to perſuade him, that, wherever temples of the God of armies (probably churches) had been erected, thoſe provinces were exempted from locuſts, and other deſtructive vermin: other officers had mentioned to him different ſuperſtitious expedients for procuring rain. In his anſwer, of which GROSIER † has favoured us with a tranſlation, he indeed treats as a ridiculous error the belief that prayers offered up to pretended beings can remedy our afflictions: but he at the ſame time lays it down as an infallible doctrine, that our plains may be deſolated by inundations, drought, or inſects, as a puniſhment inflicted by heaven on the emperor or his officers, who having deviated from integrity and juſtice, by that means may be brought back to a ſenſe of their duty. *Dalirant reges, plectuntur Achivi.*

* Note ‡ in page 193 of this Volume. † General Deſcrip. of *China*, II. 185.

"XXXV. But to proceed with the account of the
" destruction of a world; the *Burma* writings relate,
" that 1,000 years before such an event, a certain *Nat*
" descends from the superior abodes to this island. His
" hair is dishevelled, his countenance mournful, and
" his garments black. He passes every where through
" the public ways and streets, with piteous voice, an-
" nouncing to mankind the approaching dissolution.
" In the same manner as the fowls of heaven and the
" fish of the sea, by a certain natural instinct, have a
" foreboding of storms; so the *Nat* in their minds per-
" ceive the approach of a world's destruction. Then
" mankind are strongly excited to an observance of
" the law, and especially to the performance of such
" good works, as may entitle them to ascend to the
" abodes of the *Rupa*, and *Arupa*. These good works
" are chiefly four: charity, the honouring of parents
" and old age, justice, and the love of our neighbours.
" The *Nat* are thus solicitous to encourage men in ob-
" taining a place in the abodes *Rupa* and *Arupa*, be-
" cause when the world is destroyed by wind in conse-
" quence of mens' crimes, all the habitations of *Rupa*
" and *Arupa* perish: but when it is destroyed by fire,
" or water, many of these abodes remain untouched.

" On hearing the terrible forebodings of the *Nat*,
" men shudder, and with their utmost power apply
" themselves to practise the four above-mentioned good
" works. The *Nat* also who inhabit *Mienmo*, and the
" superior abodes, are elevated to the different *Zian*.
" The infernal beings, even the lots of whose evil deeds
" have now expired, are born men, and endeavour to
" lead such a life as may entitle them to a place in the
" *Zian*. It is only for the impious, and for infidels, that
" there is no salvation. Transferred to the frigid spaces
" interposed between the different worlds *, these sin-
" ners are there left to undergo eternal punishment.
" Irrational

* Page 175 of this Volume.

"Irrational animals are ſuppoſed to periſh along with
"the world."

"XXXVI. It has already been ſtated, that the
"world is deſtroyed either by fire, or by water, or by
"wind. When it is to happen by fire, as ſoon as the
"*Nat* has ceaſed to admoniſh men, a heavy rain falls
"from heaven, fills all the lakes, cauſes torrents, and
"produces an abundant crop. Mankind, now filled
"with hope, ſow ſeed more plentifully: but this is
"the laſt rain, not a drop falls for 100,000 years, and
"plants with every vegetating thing periſh. Then die
"all animals, and paſſing on to the ſtate of *Nat*, are
"from thence transferred to the abodes *Zian* or *Arupa*.
"The *Nat* of the ſun and moon having now become
"*Zian*, theſe luminaries are darkened, and vaniſh.
"In their ſtead two ſuns ariſe, which are not *Nat*.
"The one always ſucceeds the other, riſing when it
"ſets; ſo that there is no night, and the heat conſe-
"quently becomes ſo intenſe, that all the lakes and
"torrents are dried up, and not the ſmalleſt veſtige of
"a tree remains upon the ſurface of the earth. After
"a long interval, a third ſun ariſes. Then are dried
"up the greateſt rivers. A fourth ſun ſucceeds, and
"two being now conſtantly above the horizon, even
"the ſeven great lakes diſappear. A fifth ſun ariſes,
"and dries up the ſea. A ſixth ſun rends aſunder this
"and the other 1,010,000 earths, while from the rents
"are emitted ſmoke and flame. Finally, after a very
"long interval, a ſeventh ſun appears, by which
"*Mienmo*, and all the inhabitants of the *Nat*, are
"conſumed: and as in a lamp, when the wick and oil
"are exhauſted, the flame goes out; ſo when every
"thing in this and the other 1,010,000 worlds is con-
"ſumed, the fire of its own accord will die away.
"From the laſt great rain, to the final extinction of
"the fire, is one *Aſſenchiekat*."

"XXXVII. Such is the manner in which the
"world is deſtroyed by fire. When the deſtruction is

" produced by water, or wind, the circumſtances are " very ſimilar. For when water is to deſtroy a world, " at firſt there fall very gentle ſhowers, which by degrees " increaſing, at length become " ſo prodigious, that each " drop is 1000 *juzana* in magnitude. By ſuch rain the " abodes of men, and *Nat*, " ſome of the *Zian*, and all the " other million and ten thouſand worlds, are entirely diſſolved. When a world is deſtroyed by wind, the *Nat* " having finiſhed his warnings, a fine rain falls. But " it is the laſt rain during that " world. After 100,000 years " the wind begins to blow, " and gradually increaſes. At " firſt it only raiſes ſand, and " ſmall ſtones; but at length it " whirls about immenſe rocks, " and the ſummits of mountains. Then ſhaking the " whole earth, it diſſipates this " and the others, with all the " habitations of the *Nat*, *Rupa*, and *Arupa*, and ſcatters " them through the immenſe " extent of the ſkies.

" The adjoining plan ſhews " the order in which the *Burmas* ſuppoſe the ſucceſſive " worlds to be deſtroyed by " fire, water, and wind.

No. 1. Fire.
No. 2. Water.
No. 3. Wind.
No. 4.

" From this plan it will appear, that out of ſixty-" four times, the world is fifty-ſix times deſtroyed by " fire,

" fire, ſeven times by water, and once only by wind;
" and that in the ſame order as in the plan. The
" perpendicular lines repreſent the times of deſtruc-
" tion, and the horizontal ones the proportionate
" height to which each deſtruction reaches. Thus
" when fire is the agent it reaches to the height No. 1.
" and the five inferior *Zian* are deſtroyed. After a ſe-
" ries of ſixty-four deſtructions of the world, the laſt
" of which happens by wind, the firſt of the next ſe-
" ries is occaſioned by fire; and the ſame order is re-
" peated. The world which immediately preceded
" this, was deſtroyed by fire, which reached to the
" height marked No. 4."

" XXXVIII. The conceptions of the *Burmas* rela-
" tive to the reproduction of a world now come to be
" explained. As we have ſeen, they allege three
" cauſes of deſtruction, fire, rain, and wind; but, ac-
" cording to them, the only cauſe of reproduction is
" rain. One *Aſſenchiekat* after the deſtruction of a
" world rain begins to fall like muſtard ſeed, and in-
" creaſes by degrees till each drop becomes 1000
" *juzana* in ſize. This rain fills all the ſpace, which
" had been formerly occupied by the deſtroyed habi-
" tations, and even a greater: for by the wind it is
" gradually inſpiſſated to the preciſe bulk of the for-
" mer worlds. The rains, thus inſpiſſated by the
" wind, form on their ſurface a cruſt, out of which
" ariſe, firſt, the habitations of the *Zian*, and then
" *Mienmo*, with all the abodes of the *Nat* who dwell
" near that mountain. The rain continuing to be in-
" ſpiſſated, forms our earth, with the mountain *Zet-*
" *chiavala*, and finally all the other 1,010,000; and
" all theſe are exactly in the ſame diſpoſition, order,
" ſituation, and form, which they had in their former
" exiſtence. Theſe changes, both in the deſtruction
" and reproduction of worlds, take place, not by the
" influence of any creative power, but are occaſioned
" by the power *Damata*, which is beſt tranſlated by
" our word fate."

"XXXIX. It farther remains to be explained, "how the inhabitants of a new world are produced. "The *Burmas* conceive, that on the surface of the "newly-regenerated world a cruft arifes, having the "tafte and fmell of butter. This fmell reaching the "noftrils of the *Rupa* and *Zian*, excites in thefe beings "a defire to eat the cruft. The end of their lives as "fuperior beings having now arrived, they affume "human bodies, but fuch as are fhining and agile, "and defcend to occupy our earth, and the other "1,010,000, which are adjacent*. Thefe human "beings for fome time live on this preternatural food "in tranquillity and happinefs. But being afterwards "feized with a defire and love for property, the nec-"tarious cruft difappears as a punifhment for their "crime; and their bodies being deprived of tranf-"parency and fplendour, become dark and opaque. "From this lofs of light, dark night commences, and "mankind are in the utmoft perturbation: for as yet "there is neither fun nor moon. Immediately how-"ever the fun begins to appear in the eaft, diffipates "the fears of man, and fills him with delight. Hence "is the fun called *Suria*. But this joy is foon fol-"lowed by new diftrefs: for the fun performing round "*Mienmo* his daily revolution, is foon hid by that "mountain, and darknefs again commences. Men are "again afflicted by this new deprivation of light, and "in perturbation exclaim, 'O that light, which came "to illuminate the world, how quickly hath it vanifh-"ed!' While they are with ardent vows defiring "another light, behold in the fame eaftern region, and "in the beginning of night, the moon appears accom-"panied by all the ftars, and all mankind are wonder-"fully delighted. Now they fay to one another, "'How timely is this appearance! This luminary "has appeared as if it had known our neceffity; let

"us

* The fouls deftined to animate human bodies are by the *Brahmens* called *Brama*, which is evidently the fame word with the *Biamma*, or firft inhabitants of the earth, according to the *Răhāns*: for the *Burma* pronunciation makes no difference between [illegible] and r.

"us therefore call it *Zanta**.' This appearance of "the ſun, moon, and ſtars, happened on a *Sunday*, "at the full moon of the month *Taboun*, which corre-"ſponds partly with our *March*†: and at this very "inſtant of the ſun's appearance, every thing on the "earth became ſuch as it has ever ſince continued to "be. As when rice is boiled, ſome of its particles "will remain crude and undreſſed, while the remainder "is ſufficiently boiled; ſo likewiſe, ſay the *Burma* "doctors, by the power of *Damata*, or fate, part of "the earth remains plain, part riſes into mountains, "and part ſinks into vallies."

"XL. In the foregoing paragraph it has been "mentioned, that on the ſurface of the earth there "had been generated a certain cruſt like butter, which "had diſappeared, as ſoon as avarice, and the deſire "of property, began among men. This cruſt pene-"trating the interior parts of the earth, and reaching "the great rock *Sila-pathavy*, converted its upper "parts into mud, earth, and duſt. When the buty-"raceous cruſt deſcended into the earth, in its ſtead "ſprung forth a certain climbing plant, which alſo "had the taſte of butter. This plant continued to be "the common food of men till avarice again pre-"vailed; then it diſappeared. In its place, from the "merit of certain good men, there came out of the "earth's bowels a kind of excellent rice already "cleared of its huſk. Pots alſo filled with this rice "grew of their own accord; and men had only to "place them on a ſtone then common, which ſpon-"taneouſly emitted fire ſufficient to boil the rice. "Every where alſo were to be found meats various "according to each perſon's deſire.

"In the beginning, when men fed on the cruſt, and "on the climbing plant, the whole of this food was "changed into fleſh and blood: but when they began "to eat rice, the groſſer parts of that diet required

* The *Pali* word for neceſſity. † See page 170 of this Volume.

" after digeſtion to be evacuated. In conſequence, " the different canals, and organs, neceſſary in the " human body for evacuation, were of their own ac- " cord generated. After having eaten rice, men began " to have luxurious deſires, and the different organs " of ſex appeared; for before that time mankind were " neither male nor female. Thoſe who in a former " life had been males, now obtained the male organs " of ſex; and thoſe who had been women, obtained " female organs. When the difference of ſex firſt " appeared, men contented themſelves with mutual " laſcivious glances: but afterwards they married. " Nevertheleſs there remained many virgins of great " virtue, and many holy men, who were called " *Manuſſa Biamma*. Theſe neither practiſed agricul- " ture, nor any mechanical art; but only underwent " the great labour of making offerings and beſtowing " alms. Theſe men long obſerved inviolate chaſtity: " but when in the progreſs of time they perceived " their numbers daily leſſening, many of them, in " order to raiſe up an offspring, contracted marriages; " and thoſe who are now called *Brahmens*, are de- " ſcended from theſe laſt alliances. The *Manuſſa* " *Biamma*, who had retained their chaſtity, were very " indignant on hearing of this conduct in their com- " panions; and loathing much their depravity, ever " after held them in the utmoſt contempt, ſpit in their " faces, and abhorred to have any community with " them in eating, cloathing, or dwelling. From this, " ſay the *Burma* doctors, has ariſen among the *Brah-* " *mens* the cuſtom of not eating or waſhing with the " reſt of mankind. But although the law of GODAMA " permits marriages; yet as, without the ſtrict obſer- " vance of celibacy, no perſon can arrive at *Nieban*, " ſo therefore all wiſe men have conſidered marriage " as a deed not of a perfect nature."

" XLI. THE *Biamma*, who had married, by de- " grees built houſes, villages, and towns: but when " they began to multiply, there aroſe among them

" contentions

"contentions and quarrels; for avarice prevailing,
"every one consulted his own immediate interest,
"without attending to the injury he might do to his
"neighbour. At length these disputes came to be
"determined by strength; and to put a stop to this
"violence, it was determined in common council to
"elect a prince, who should be able to reward accord-
"ing to merit, and to punish according to the atrocity
"of crimes. And a certain man being found amongst
"them, who excelled the rest in stature and beauty,
"and who had always been more observant of the
"laws than the others, this person was created king
"and lord of the earth: because he had been chosen
"by common consent, he was called MAHASAMATA;
"because he was made lord of the earth, he was called
"KATTIA; and because he punished according to the
"laws, he was named RAZA. From this MAHA-
"SAMATA descended a series of forty-four kings, of
"whom, according to the most learned of the *Burmas*,
"the tenth was GODAMA*."

THE account of the missionary here is not very clear. It is not evident, whether GODAMA, as descended from MAHASAMATA, was a *Brahmen;* or whether both princes are considered to be descended from the *Biamma*, who married before the *Brahmens*. If the former be the case, the *Răhāns* make their god to be an apostate *Brahmen:* if the latter be their meaning, they suppose the *Brahmens* to be a sect of dissenters from their religion. I imagine, that little credit can be given to either opinion. The *Răhāns* are evidently mistaken in their account of the origin of the *Brahmens;* for the aversion to eating in common with others does not originate with mankind, but with the *Brahmens*. I think it indeed probable, that this account has been lately framed by the *Răhāns*, with a view of rendering odious to their followers a race of priests,

* Compare this account with the History of *Cashmere*, p. 163 of this Volume.

priefts, fo formidable among ignorant people from their hypocrify, mortifications, and impudent pretenfions to fupernatural powers.

I THINK that Sir W. JONES and PAULINUS have fucceeded in proving, that the religion of the *Brahmens* is effentially the fame with that of the *Egyptians*; and therefore I muft think it probable, that the two religions had a common origin: but notwithftanding the etymological labours of the latter author, I muft agree with the former, and with M. ANQUETIL DU PERRON, in thinking, that *Egypt* is the fource from whence this worfhip has been fpread over a great proportion of the world. In fact, during the moft remote periods, to which hiftory reaches, we find this religion univerfally eftablifhed in *Egypt*. Later, but as foon as our knowledge extended to *India*, we find there eftablifhed two fects: the *Magi*, and the *Samanians*, or priefts of GODAMA. We afterwards learn, that the *Brahmens* were a fet of priefts in *India* following nearly the fame worfhip with thofe of *Egypt*. We find them about the time of CHRIST gaining a fuperiority over the worfhippers of BOUDDHA; and about nine hundred years afterwards, we find them totally overthrowing his doctrine in its native country*. That the *Vedas*, which are commonly fuppofed to be the oldeft books of the *Brahmens*, are inferior in antiquity to the time of BOUDDHA, is evident from the mention which they make of that perfonage. The ftrongeft objection againft this opinion of the *Egyptian* origin of the *Brahmenical* worfhip, appears to me to be the cofmography of the *Brahmens*, the fame nearly with that of the *Răhāns*, and in my opinion evidently framed in the north of *Hinduftan*. A folution of this difficulty may however be given. We may readily fuppofe the *Brahmens* to have been a colony of *Egyptians*, who formed their firft eftablifhments in the

* PAGE 165 of this Volume.

the vicinity of *Bombay**; and by degrees engrafted their ſuperſtition on the ignorance of the *Hindus*, adapting the *African* deities and miſtical philoſophy to the *Aſiatick* fables and heroes, and carefully introducing the *Egyptian* caſt and ceremonies with all their dreadful conſequences.

"THE *Burma* doctors," continues the miſſionary, "admit of four claſſes of men: the firſt, deſcended from "MAHASAMATA, are princes; the ſecond, deſcended "from the *Manuſſa Biamma*, who married, are the "*Brahmens*; the third, deſcended from ſuch men as "married before the *Manuſſa Biamma*, are the *Sathe* "or rich: in the fourth claſs, called *Suchive*, are in-"cluded all other men, merchants, artificers, labour-"ers, and the like."

This opinion might be ſuppoſed to imply, that the ſect of BOUDDHA admitted of caſt, in a ſimilar manner with that of the *Brahmens*; but as far as relates to its followers in the *Burma* empire, and in *Siam*, I can aſſure the reader, that ſo cruel and ſo abominable a diſtinction is utterly unknown, except by report, and from the example of the *Hindus* ſettled in thoſe countries. At what time then was the doctrine of caſt eſtabliſhed in *Hinduſtan?* PLINY is the only antient author to whom on this ſubject I can at preſent refer. He mentions a diviſion of ranks among various *Indian* nations, which he calls *vita multipartita*: but from what he ſays, it would not appear to have been univerſal at the time he received his intelligence: neither is it by any means clear, that his *vita multipartita* means caſt. It is to be obſerved, that all *Roman* citizens followed nearly the ſame manner of life: they were ſoldiers and ſtateſmen; and when not employed in either of theſe

* THE images in the cave at *Elephanta* appear to me, now that I am acquainted with the ſubject, evidently to be thoſe of the gods of the *Brahmens*. I well remember, when I viewed them, (although then quite unacquainted with the controverſies concerning their origin), that I was ſtruck with the *African* appearance of their hair and features; and conceived them to have been the work of SESOSTRIS, as I had imbibed the vulgar idea, that they were not the idols of the *Brahmens*.

these capacities, they were all cultivators of the land. To them therefore a distinction of professions in the citizens of a state would appear strange: and I am apt to think, that the *vita multipartita* of PLINY more resembles the division of ranks and professions among the *Burmas*, or in modern *Europe*, than it does the cast of the *Brahmens*. The passage I allude to is, "*Namque vita mitioribus populis Indorum multipartita* "*degitur. Alii tellurem exercent, militiam alii ca-* "*pessunt, merces alii suas evehunt, respublicas optimi* "*ditissimi temperant, judicia reddunt, regibus assident.* "*Quintum genus celebratæ illic, et prope in religionem,* "*versæ sapientiæ deditum, voluntaria semper morte vi-* "*tam, accenso prius rogo, finit**. *Unum super hæc est* "*semiferum, ac plenum laboris immensi, et quo supra* "*dicta continentur, venandi elephantes domandique,* "*Iis arant, iis invehuntur, hæc maxime novere pecu-* "*aria: iis militant dimicantque pro finibus.*†" It is to be observed, that this description neither agrees well with the present divisions of the different casts, nor does it call the learned *Brahmens*; on the contrary, PLINY speaks of the *Brachmanæ* not as a class or order in society, but as a nation, or as a name common to many nations. He mentions, that SENECA had attempted to procure the names of all the people inhabiting *India*, and had actually heard of one hundred and eighteen nations. The most considerable of these he afterwards enumerates: "*Gentes, quas* "*memorare non pigeat, Ismari, Cosyri, Izgi, et per* "*juga Chisiotosagi, multarumque gentium cognomen* "*Brachmanæ quorum Maccocalingæ, flumina Pumas et* "*Cainas (quod in Gangem influit) ambo navigabilia.*‡"

This

* IT is to be observed, that this manner of ending life, attributed to the learned of antient *India*, more resembles that in use among the priests of *Pegu* (LOUBERE's *Relation du Siam*) than it does that recommended by the *Brahmens*, who according to ABUL FAZIL (*Ayeen Akbery*) think it meritorious to terminate life by cutting the throat at the confluence of the *Ganges* and *Jumna*, or by exposing themselves to the alligators at the mouth of the holy river.

† Nat. Hist. L. 6, c. 19. ‡ Nat. Hist. L. 6, c. 17.

This circumſtance ſurprizes me, as the general recollection of my reading induces me to believe, that the *Brahmens*, as a religious ſect, had been eſtabliſhed in *India* before the time of ALEXANDER, from whoſe expedition PLINY's knowledge of the northern parts of *Hinduſtan* is chiefly derived. To thoſe who have an opportunity, I leave it to determine the time when *Brahmen* came to be the name applied to the religious of *India*. With PLINY it ſeems to be analogous to the *Brahmens* of *Kuſhup**, or perhaps the *Biamma* of the *Răhānst*†. Mr. HARINGTON has ſuggeſted to me, ſince I wrote the above paſſage, that all the countries in which BRAHMA was worſhipped might be called *Brahmenical*, an opinion which I think not improbable. If it be juſt, it will ſhow the progreſs made by the *Brahmens* in *India* in the fourth century before the birth of CHRIST.

"XLII. IT being admitted, that all mankind are "the offspring of the ſame ſtock, namely of the *Bi-* "*amma*, who deſcended from the abodes of the *Rupa*; "a certain *Burma* doctor aſks, why there is not the "ſame language among all nations; and whence ari- "ſes that variety of manners, religions, complexions, "and features, ſo obſervable among the inhabitants "of this earth? This ſame doctor thinks he anſwers "this queſtion, by ſaying that the firſt inhabitants of "the world, after having greatly multiplied by mar- "riage, were forced to emigrate into various parts of "the earth; and as in theſe the climate, air, water, "natural productions, and temperature, are extremely "different, ſuch circumſtances could not have failed "to produce an effect on the manners, religion, and "appearance, of thoſe who were under their influ- "ence. For if in one kingdom the inhabitants vary "in ſtature and colour, how much more evident muſt "this difference be amongſt the inhabitants of remote "countries? And as children deſcended from the "ſame parents are called by different names; ſo of "the

* Page 164 of this Volume. † Pages 245 & 248 of this Volume.

" the descendants of the *Biamma*, some are called
" *Burmas*, some *Cussays*, some *Peguese*, and some
" *Siammese*. He also alleges, that, according to a
" person's lot of good or evil deeds, he is born either
" a *Burma*, or a *Siammese*, or a *European*. It some-
" times also happens, that he who was at first born
" of an ignoble family, shall afterwards be born of an
" illustrious race: but this not from his original lot
" of nativity, but from some accidental good works.
" For diversity of names the same author thus ac-
" counts. It may so happen, says he, that the same
" person, according to the different actions he may
" have performed, may be considered in different
" points of view, and thus obtain different appella-
" tions: and this he confirms by the example of Go-
" DAMA, who, according to his various attributes and
" excellencies, is called by various names.

" The same author inquires, by what power and
" cause the various kinds of trees and herbs have
" appeared in the world? He supposes them to have
" arisen from the seeds of the antecedent world con-
" tained in that rain by which the new earth was
" reproduced. The same however he does not ven-
" ture to affirm of the mines of gold, silver, and
" precious stones, which he alleges have not from
" the beginning existed in the world, but have origi-
" nated from the virtues of good men. Thus when
" just and upright princes reign on earth, and when
" many men are celebrated for sanctity and virtue,
" then the tree *Padeza* appears; from the heavens
" showers of gold and precious stones descend; in
" the bowels of the earth many mines of gold and
" silver are discovered; the sea also throws up on its
" shores various kinds of riches, and whatever is
" sown comes to perfection. On the contrary, when
" unjust kings have reigned, or when men have neg-
" lected the laws, not only have new riches remained
" undiscovered, but all the old wealth has disappeared;
" the mines of gold and silver have been exhausted;
and

"and the fruits of the earth have become of ſuch "a noxious quality, as to induce upon mankind "misfortune, diſeaſe, and peſtilence."

Such are the general doctrines of the ſect of BOUDDHA, as extracted from the writings of the *Răhāns* by SANGERMANO; doctrines which, although intended to lead mankind to the performance of good works, are involved in the moſt puerile and abſurd fables.

THE religion of the *Burmas* is ſingular, as exhibiting a nation conſiderably advanced from the rudeneſs of ſavage nature, and in all the actions of life much under the influence of religious opinions, and yet ignorant of a Supreme Being, the creator and preſerver of the univerſe. The ſyſtem of morals however recommended by theſe fables, is perhaps as good as that held forth by any of the religious doctrines prevailing among mankind. The motives alſo by which theſe fables excite to good works, unite the temporal nature of the *Jewiſh* law to the future expectations of the *Chriſtian* diſpenſation: while having adapted the nature of the rewards and puniſhments to the conception of our preſent faculties, they have all the power of the *Mohamedan* paradiſe; and having proportioned theſe puniſhments and rewards to the extent of virtue or vice, they poſſeſs the juſtice of the *Roman* purgatory, but without giving to prieſts the dangerous power of curtailing its duration. BOUDDHA has no doubt given to the beſtowing alms on the clergy a conſpicuous place among the virtues: but his clergy for ſupport are entirely dependant on theſe alms; as they have not ventured to propoſe any ſtated, laſting, or accumulating property, being annexed to their order; nor have they aſſumed to themſelves any rank or power in the management of ſecular affairs. Except this elevation of an inferiour virtue to the rank of an important duty, and the merit which we ſhall find given to the ceremony

of

of pouring forth water on certain occaſions, there is perhaps no conſiderable objection to any of the morality recommended by GODAMA, unleſs it be his conſidering it criminal to put any animal to death for the uſe of man*; and his repreſenting celibacy as a kind of virtue, or at leaſt as a more perfect ſtate than marriage: an idea, though common to ſome of the authors of prevailing religions, yet certainly productive of much miſery, and of the worſt conſequences. It muſt however be confeſſed, that the practice of morality among the *Burmas* is by no means ſo correct, as might be perhaps expected among a people whoſe religious opinions have ſuch an apparent tendency to virtue. In particular, an almoſt total want of veracity, and a moſt inſatiable cruelty in their wars and puniſhments, are obſervable among them on the ſlighteſt acquaintance.

HAVING now conſidered in a general manner the religion and ſcience of the *Burmas*, I muſt deſcend ſomewhat more to particulars: and in giving an account of their faith, I cannot follow a better guide than the treatiſe of the ZARADO. It will give the reader not only a faithful abridgment of the religious doctrine of the *Răhāns*, but will alſo ſhow him the progreſs made by the beſt informed prieſts of the country in the art of compoſition and inſtruction.

BUT as a preface to this treatiſe, I muſt here inſert ſome obſervations on the hiſtory and name of the god.

THE author of the *Alphabetum Tibetanum* ſuppoſed BOUDDHA to have been the ſame with the JESUS of the *Manichæans;* and father PAULINUS, in his triumph over this abſurdity, denies that any ſuch perſon ever exiſted. Entirely neglecting the authority of the numerous

* THE worſhippers of GODAMA do not look on any animal food as unclean: it is only the depriving it of life which they regard as criminal. Accordingly they eat all manner of carrion, and many diſguſting reptiles are their favourite food.

numerous ſect of BOUDDHA, who all ſuppoſe him to have really lived, and to have been an *Indian* prince, the learned *Carmelite* from ſome coincident attributes believes BOUDDHA and HERMES to have been the ſame. He ſuppoſes them, as well as all the other gods of the *Greeks* and *Brahmens*, not to have been real beings, but perſonifications of the elements and heavenly bodies. In applying this ſuppoſition to BOUDDHA, as worſhipped by the *Răhāns*, he quite overlooks the eſſential difference of their making GODAMA an only God, and that the doctrine of perſonification neceſſarily implies polytheiſm, a ſyſtem of belief held in abhorrence by theſe prieſts. I think it a more probable opinion, when the *Brahmens* introduced their doctrine into *Hinduſtan*, that they could not venture to deny the divinity of the god of the country; but on comparing his attributes with thoſe of their different gods, that they alleged him to be the ſame with their TOTH; and by adopting him and his titles into the liſt of their deities, and many of the prejudices of his followers into their capacious ſyſtem, they greatly facilitated the progreſs of their doctrine. It is true, that the various accounts of GODAMA, ſaid to be given in the legends of the different nations following his religion, agree ſo little together, that they can hardly be made matter of hiſtorical evidence. But many of theſe differences may have ariſen from the miſtakes of travellers; and it is only by procuring faithful tranſlations of the different legends, that we can be enabled to determine what credit is due to their contents. In the mean time I muſt ſay, that I know of no plauſible reaſon for believing that GODAMA did not exiſt, and was not an *Indian* prince, as his followers univerſally allege. The father, although a catholick, ſeems to found his objection on the ſuppoſition, that mankind could never be ſo abſurd as for any length of time to worſhip a man.* But the whole difficulty of PAULINUS is removed

* *Mus. Borg.* page 37.

removed by the doctrine of GODAMA. His followers are, strictly speaking, atheists, as they suppose every thing to arise from fate: and their gods are merely men, who by their virtue acquire supreme happiness, and by their wisdom become entitled to impose a law on all living beings. If the BOUDDHA of the *Răhāns* were merely the genius of the planet Mercury, as PAULINUS so violently urges,* why do his followers place his abode or palace in the lowest habitation of *Nat*, among beings equally liable with mankind to old age, misery, change, and gravity? That the *Egyptian* religion was allegorical, I think, the learned father, with many other writers, have rendered extemely probable; and consequently I think that the doctrine of the *Brahmens* has in a considerable measure the same source: but I see no reason from thence to suppose, that BOUDDHA, RAMA, KISHEN, and other gods of *India*, may not have existed as men: for I have already stated it as probable, when the *Brahmens* arrived in *India*, that they adapted their own religious doctrine to the heroes and fabulous history of the country. Neither do I think it altogether impossible, that even in *Egypt* the priests, who at first introduced the worship of the elements and heavenly bodies, afterwards applied to these deities the names of such persons as were most celebrated among their countrymen, and intermingling the legendary tales concerning these personages with their own mystical philosophy, produced that absurd mass of theology, by which a great part of mankind have been so long subjugated.

DIFFERENT learned men have supposed BOUDDHA to have been the same with NOAH, MOSES, or SIPHOAS, thirty-fifth king of *Egypt*: but as I have not at present access to the works of HUET, VOSSIUS, or TOURMONT, I do not know on what reasons such suppositions have been formed. Sir W. JONES supposed BOUDDHA to have been the same with SESAC or SESOSTRIS,

* *Mus. Borg.* page 69.

SESOSTRIS, king of *Egypt*, "Who by conqueſt ſpread "a new-ſyſtem of religion and philoſophy, from the "*Nile* to the *Ganges*, about 1,000 years before "CHRIST*." The affinity of the religion of *Egypt* with the preſent ſuperſtition of *Hinduſtan*, and the fatal reſemblance of the words SESAC and SAKYA, one of the names of GODAMA, ſeem to have given riſe to this ſuppoſition. In my opinion, however, no two religions can be well more different, than that of the *Egyptian* polytheiſt, and that of the *Burma* unitarian. SESAC or SESOSTRIS is indeed placed by antiquarians at the time to which the learned judge alludes: but I ſhall hereafter have occaſion to ſhow, that, according to the moſt probable accounts, the origin of the religion of GODAMA ought to be referred to a much later period†. That the religion of the *Brahmens* was introduced from *Egypt*, I have already mentioned as an opinion highly probable‡: but I ſuſpect that this happened by no means ſo early as the time of SESOSTRIS, whoſe object in his military expeditions appears rather to have been plunder, and the capture of ſlaves, than the propagation of religion or philoſophy. The perſecution of the *Egyptian* prieſts by CAMBYSES is a more likely period for any very extenſive emigration into *India*; at the ſame time it is not improbable, that the *Egyptians*, who before this traded to *India*, had previouſly communicated ſome knowledge of their ſcience to the *Hindus*.

IT muſt be obſerved that the god, of whoſe doctrine we are now going to give an explanation, has a great variety of names, which are apt to produce much confuſion. GODAMA or KODAMA is the moſt common appellation among his worſhippers in *India* beyond the *Ganges*. It ſeems alſo to be common among the *Hindus*, and by Sir WILLIAM JONES copying I ſuppoſe from the *Sanſcrit*, is written GOTAMAS.‖ This name

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* *Aſiatick* Reſearches, II, 380.
† See note † in page 265 of this volume.
‡ See page 148 of this volume.
‖ *Aſiatick* Reſearches, IV, 170.

name PAULINUS informs us may be written GODAMA or GAUDAMA, and literally ſignifies cow-herd, but metaphorically king*. It has however been mentioned to me, on the authority of a pundit belonging to our ſupreme native court in *Bengal*, that the meaning of GODAMA is eminently wiſe, a ſage. SOMONA, the name prefixed to this appellation by M. DE LA LOUBERE, ſignifies that he had adopted the dreſs of a *Răhān*, as I was informed by MUE-DAUNG SEITAGIO, an intelligent *Siammeſe* painter at *Amarapura*. The ſame circumſtance is implied by BURA-ZAYNDU, one of the moſt common titles beſtowed on him in the *Burma* empire: for his images are almoſt always in the dreſs of a *Răhān*. Many other appellations are given to GODAMA from the poſtures in which he is repreſented in his various images. Thus a famous image at *Pougan* is named ANANDA, which ſignifies plenty, from its ſuppoſed efficacy in producing that bleſſing.

IN the *Pali* language, and among the *Cingaleſe*, a common name for this divinity is BOUDDHA. This Mr. CHAMBERS writes BUDDOU†, PAULINUS BUDHA‡, and from theſe two authors I have collected the following corruptions of that name. BUDDA, or BUTTA, of BEAUSOBRE and BOCHART, BOD of the *Arabians*, BODDA of EDRISI, Βουττα of CLEMENS ALEXANDRINUS, and BAOUTH of M. GENTIL. This name is ſaid to be an appellation expreſſive of wiſdom‖. I can readily agree with theſe two learned men, that the POUT of the *Siammeſe*, POUT, POTT, POTI, POT of the natives of *Thibet*, and the BUT of the *Cochinchineſe*, may alſo be corruptions of BOUDDHA. The *Siammeſe* painter told me, that the moſt common name for GODAMA among his countrymen is POUTTEE SAT, which he interpreted into BURALOUN, a common appellation among the *Burmas*. Among theſe indeed I very rarely heard BOUDDHA uſed, probably becauſe BURALOUN has the

* *Mus. Borg.* page 8. † *Aſiatick* Reſearches, I, 142.

‡ PAULINUS *Mus. Borg.* page 71.

‖ STEPHENS's tranſlation of FARIA Y SOUZA, II, page 4, chap. 19, par. 26.

the ſame meaning. Mr. CHAMBERS, following M. GENTIL, and ſollowed by PAULINUS, conceives the FO or FOHI of the *Chineſe* to be alſo a corruption of BOUDDHA. The etymology is here ſo forced, that I do not think it merits great attention: yet I allow it to be a probable opinion, although not completely eſtabliſhed, that FO and BOUDDHA are the ſame god *. The derivation of TAAUTOS, TOTH, or TOUTH, the *Egyptian* name ſor HERMES, from the ſame word BOUDDHA, † ſeems to me perfectly ſanciful: and I muſt entirely diſſent even from the rational Mr. CHAMBERS, when he ſuppoſes BOUDDHA to be the ſame with the WODEN of the *Scandinavians*. No two religions ſurely can be more totally different; nor can I conceive it to be a ſufficient proof of a common origin, that the ſame day of the week is called after the two gods. No circumſtance indeed ſeems to have occaſioned more miſtakes among the antiquarians, than from one or two coincident attributes to ſuppoſe two divinities of different nations to be the ſame: an error adopted by all the *Greeks* and *Romans*, whether from reſpect to their gods, or from national vanity.

A CONSIDERABLE degree of conſuſion is to be ſound in the various accounts of the religion of the *Chineſe*. GROSIER, the lateſt author on the ſubject, with whom I have met, ſeems by no means to have had good information. I know well that ſome of the *Brahmenical* gods are worſhipped in *China*, having ſeen their images in that great temple oppoſite to *Canton*, which was the palace of the laſt native princes of the *Chineſe* empire. I have lately ſeen ſome elegant drawings of the *Chineſe* gods, belonging to the Reverend Mr. BROWN, of *Calcutta*: and as far as I can truſt to my memory, they appear to be very exact repreſentations. Although the *Chineſe* have given to theſe idols their own features, and dreſs, with new names, yet there can be no doubt of their being the ſame with the gods of the *Brahmens*. Among them YOU-LOE-FAT, the god of wiſdom,

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* See note † in page 268 of this volume.

† PAULINUS *Mus. Borg*. page 73.

wiſdom, has a very ſtrong reſemblance to the images of GODAMA; and perhaps the *Chineſe* ambaſſdors, and their ſuite, whom I ſaw at *Amarapura* worſhipping the images of BOUDDHA, conceived the two deities to be the ſame. When in the firſt century of the *Chriſtian* æra the ſuperſtition of a *Chineſe* monarch had introduced into his dominions the religion of the *Brahmens*, his ſucceſſors were too juſt to hinder their ſubjects from worſhipping what gods they thought proper; but they were too wiſe to admit the *Brahmens* as prieſts, or to tolerate their intriguing ſpirit, or their deteſtable ſyſtem of government: a conduct entirely ſimilar to that wiſely adopted towards the *Jeſuits* by the late emperor YONG-TCHING. On the whole I am inclined to believe, that the religion moſt commonly profeſſed by the vulgar *Chineſe*, has nearly the ſame affinity to that of the *Brahmens*, which the ſect of quakers has to our eſtabliſhed church. It is true, that they have *Bonzes*, or regular prieſts: but theſe are neither *Brahmens*, nor are they acknowledged by the *Răhāns* to be legitimate prieſts of BOUDDHA. But the worſhip of theſe *Brahmenical* gods, as communicated to the *Chineſe*, is quite diſtinct from that of GODAMA. Whether the god FO be one of theſe gods of the *Brahmens*, or whether he be SHAKA, or whether all the three be diſtinct, I will not preſume, for want of ſufficient information, to aſſert: but there is a great probability, that a very conſiderable ſect among the *Chineſe* worſhip GODAMA under tbe name of SHAKA, or, as the *Portugueſe* write it, XACA.

THE ſect of BOUDDHA is ſaid by ſome to have been introduced into *China* in the year of our æra 63*. Others allege, that this event did not happen till the year 519: and that the apoſtle was a certain DARMA, third ſon of an *Indian* king, the twenty-eighth in deſcent from SHAKA, or as, the *Dutch* write, SJAKA.

* FARIA Y SOUZA tranſlated by STEPHENS, II. p. 4, C. XVI. par. 12. GROSIER's general deſcription of *China*, II, 215.

SJAKA.* The name SHAKA Sir WILLIAM JONES wrote SAKYA, and PAULINUS SHAKYA. It ſignifies, according to that learned etymologiſt, the cunning, the god of good and bad fortune †. From *China* the religion of SHAKA ſeems to have ſpread to *Japan*, *Tonquin*, *Cochinchina*, and the moſt remote parts of *Tartary*.

IT muſt however be obſerved, that the religion of *Cochinchina*, deſcribed by BOIRET ‡ as that of BUT, THAT-DALNA, NHIN-NHUC or THICA MAUNI-PHUT, and alleged to have been introduced from *Ceylon* in the reign of the *Chineſe* emperor MINH-DE, ſeems to differ in many eſſential circumſtances from the doctrine of the *Burma Răhāns*. The *Cochinchineſe* are alleged to ſuppoſe, that BUT created the heavens, the earth, and indeed the whole univerſe: and from BOIRET's mentioning that they adore BUT as the principal deity, we may infer, that they allow of other gods. The prieſts of the *Cochinchineſe* are alleged to be pretenders to the arts of magic, enchantment and necromancy, and to implore the divinity to aſſiſt them in ſuch deceptions. In theſe circumſtances the worſhip of BUT in *Cochinchina* differs from that of BOUDDHA in *Ava;* and I ſuſpect, that there, as well as in *China*, the prevailing vulgar religion is the worſhip of the gods of the *Brahmens* freed from the doctrine of caſt; and that BOUDDHA is with them the favourite god, as different members of the *Egyptian* theocracy in different places met with very different degrees of reſpect. Still however the accounts I have ſeen of the vulgar religion in theſe eaſtern regions are very unſatisfactory; and the hints given us by ALEXANDER of *Rhodes*, ‖ concerning the doctrine of THICCA in *Tonkin* and *Cochinchina*,

 bear

* KÆMPFER, *Amæn. Exot.* 608, as quoted in HARRIS's voyages, I. 543.

† *Mus. Borg.* pag. 80. ‡ PAULINUS *Mus. Borg.* pag. 89 et ſeq.

‖ *Dictionarium Anamiticum Romæ*, 1651, page 761.

bear a much ſtronger reſemblance to the worſhip of the *Răhāns*, than the accounts of BOIRET.

THESE various names applied to the god, of whom I am treating, are all appellatives, expreſſing his various attributes, as we uſe the terms, almighty, the moſt high, and other ſimilar phraſes, to denote the Creator of the univerſe. Many other appellations of BOUDDHA may be ſeen in PAULINUS, who copies them from the *Amaraſinha*, a work of the *Hindus;* but as I do not know, that theſe titles are ever beſtowed on GODAMA by thoſe who worſhip him as the only god, I ſhall forbear to enumerate them.

THE name by which this divinity was called on earth, was probably DHERMA or DHARMA rajah; although it muſt be obſerved, that among the *Hindus* it has never been cuſtomary to call any prince by his proper name. This cuſtom has been communicated to the *Burmas* with ſuch ſtrength, that it is almoſt impoſſible to learn the name of any prince during his reign. His titles only can lawfully be mentioned; and the law is enforced with ſuch rigour, that *Burmas*, even in *Calcutta*, ſhudder when requeſted to mention the dreadful name; nor am I ſatisfied, that either Captain SYMES, or I, could ever procure the real name of the reigning monarch. DHERMA rajah ſignifies, according to PAULINUS, the virtuous or beneficent king,* and may be only a title beſtowed on that prince, whoſe real name, as his reign ſtill continues, it may not be lawful to mention. This etymologiſt alſo alleges, that the name HERMES muſt be derived from the *Sanſcrit* word *Dherma*, ſignifying virtue or beneficence: although interpreter was imagined to be the meaning of this word by the *Greeks*, as the father probably would ſay, owing to their ignorance of the *Samſcrdam*, as he has choſen to name the language of the *Hindus*. His opinion however is ſupported with ingenuity; and the word *Turm*, which WINCKELMANN luckily found upon two old pots in *Italy*, is by no means

* *Mus. Borg.* page 75.

means a weak ſupport to an etymological reaſoner. Having thus endeavoured to collect the various appellations beſtowed on the god of the *Burmas*, I proceed with the tranſlation of

A SHORT VIEW OF THE RELIGION OF GODAMA.*

" A CATHOLICK biſhop, reſiding at *Ava* ſometime " ago, aſked the chief *Rähān*, called ZARADOBURA, to " give him ſome ſhort treatiſe, which would explain " the heads of the law taught by GODAMA. The ZA- " RADO, willing to ſatisfy the biſhop, wrote for his uſe " the following treatiſe:

" THE gods who have appeared in this preſent " world, and who have obtained the perfect ſtate " *Nieban*, are four; CHAUCHASAM, GONAGOM, GASPA, " and GODAMA.

" *Q.* Of which of theſe gods ought the law at preſent " to be followed?

" *A.* Of the god GODAMA.

" *Q.* Where is the god GODAMA?

" *A.* GODAMA, at the age of thirty-five years, having " attained divinity, preached his law for forty- " five years, and brought ſalvation to all living " beings. At eighty years of age he obtained " *Nieban*, and this happened 2362 years ago.† " Then GODAMA ſaid, After I ſhall have departed " from this earth, I will preſerve my law and diſci- " ples

* I HAVE little doubt, but that the author of this treatiſe was the ſame ZARADO who wrote the *Compendium legis Barmanorum*, of which PAULINUS gives us an account. The treatiſe however tranſlated by SANGERMANO does not contain ſeveral of the circumſtances ſaid to be mentioned in that of the muſeum of the liberal and learned cardinal BORGIA.

† I AM not certain whether the original means, that GODAMA died 2362 years before the period at which the biſhop received the book from the ZARADO; or whether, in tranſlating it, father SANGERMANO reduced the time to the year 1795. in which I ſaw him: I believe the latter to be the caſe, although the difference will not be great, as the biſhop died at *Ava* a few years ago. Much reaſoning of Sir WILLIAM JONES, on the age in which BOUDDHA lived, may be ſeen in the *Aſiatick* Reſearches, (II,

"ples for five thousand years: and he commanded "that his images and relics should be worshipped, "which has accordingly been ever since done.

"*Q.* In saying that GODAMA obtained *Nieban*, what "is understood by that word?

"*A.* When a person is no longer subject to any of the "following miseries, namely, to weight, old age, "disease, and death, then he is said to have ob- "tained *Nieban*. No thing, no place, can give us "an adequate idea of *Nieban*: we can only say, "that to be free from the four abovementioned "miseries, and to obtain salvation, is *Nieban*. In "the same manner, as when any person labouring "under a severe disease, recovers by the assistance "of medicine, we say he has obtained health: but "if any person wishes to know the manner, or "cause of his thus obtaining health, it can only "be answered, that to be restored to health signifies "no more than to be recovered from disease. In "the same manner only can we speak of *Nieban*, "and after this manner GODAMA taught.

"*Q.* Is not GODAMA the only true god on the face "of this earth?

"*A.* GODAMA

(II, page 121, and the following). It would appear by this, that the *Brahmens* differ some thousands of years in their accounts of the time of his appearance. From the immense variations of time in the chronology of the *Brahmens*, no trust can rationally be put in their account. The opinion of the *Chinese* states SHAKA to have lived 1028 years before CHRIST: but as this opinion can only be founded on the authority of the *Indians*, who introduced the worship of BOUDDHA into *China*, it proves no more than the *Indian* ideas at the time: otherwise it would deserve much credit. GEORGI, from the writings of *Thibet*, reduces the æra of BOUDDHA to the year 959 before CHRIST. If I am right in my conjecture, the ZARADO's 2362 *Burma* years, equal to nearly 2341 of the *Julian* reckoning, would place the death of GODAMA 546 years before CHRIST. The *Siammese*, whose vulgar æra commences with the death of GODAMA, make that event to have happened in the year 544, (*Relation du Royame de Siam, par* M. DE LA LOUBERE, II, 160,) within two years of the ZARADO's estimate. The *Cingalese*, according to Mr. HARINGTON, make the æra of GODAMA's death 542 years before CHRIST. PAULINUS, calculating from the date given in the *Borgian* manuscript, reduces the *Siammese* period four years: and in all such differences of opinion, the safest to follow is the latest date, as most likely to approach the truth.

"*A*. GODAMA is the only true and pure god, who
"knows the four laws called *Sizza*, and who can
"beſtow *Nieban*. In the ſame manner as on the
"deſtruction of a kingdom many ariſe, who aſpire
"to the throne, and who aſſume the royal inſigina;
"ſo when the time fixed for the duration of the
"law preceding GODAMA had expired, and it had
"been propheſied for a thouſand years, that a new
"god was about to appear, ſix men before the
"coming of GODAMA pretended, that they were
"gods, and each of them was followed by five
"hundred diſciples.

"*Q*. Did thoſe falſe gods preach no doctrine?

"*A*. They did preach: but that, which they taught,
"was falſe.

"*Q*. What did they teach?

"*A*. One taught, that the cauſe of all the good and
"evil, which happen in the world, of poverty and
"wealth, of nobility and want of rank, was a cer-
"tain ſuperiour *Nat* of the woods, who on this
"account ought to be worſhipped by mankind.

"A ſecond taught, that after death men were by no
"means changed into animals, and that animals on
"being ſlain were not changed into men: but that
"after death men were always born men, and
"animals born animals*.

"A third denied the proper *Nieban*, and aſſerted, that
"all living beings had their beginning in their mo-
"ther's womb, and would have their end in death:
"and that there is no other *Nieban*, but this
"death†.

"A fourth

* THIS was probably the doctrine adopted by the *Burmas* before they were converted to the religion of BOUDDHA: for it is yet retained by the *Karayn*, a rude tribe ſtill occupying many of the woods in the *Pegu* and *Burma* kingdoms.

† GROSIER, in his account of the *Chineſe* religion, (II, 222,) has either confounded this heretical *Nieban* with the true doctrine of the *Răhāns*, or elſe the religion he has deſcribed as that of FO, muſt be different from that of GODAMA. In that work alſo many deteſtable practices are aſcribed to the *Chineſe Bonzes*, which, ſo far as I could learn, were entirely unknown to the *Răhāns*; and alſo many fooliſh and groſs ſuperſtitions, and penances, which they never practiſe.

" A fourth taught, that all living things neither had
" a beginning, nor would have an end: and that
" every thing which happens arises from a fortui-
" tous and blind fate. He denied the lot of good
" and evil deeds, which, according to the law of
" GODAMA, is the efficient cause of all the good and
" evil that happen to living beings.

" The fifth taught, that *Nieban* consists in nothing
" more than the life of certain *Nat* and *Biamma*,
" who live for the whole duration of a world.
" He asserted, that the chief good works are to
" honour our parents, to endure the heat of the
" sun or of the fire, and to support hunger; that
" there is no crime in killing animals. He said,
" that such as performed these good works, would
" be rewarded in a future life; and that such as
" did the contrary, would be punished.

" The last taught, that there existed a being, who had
" created the world, and all things which are
" therein, and that this being only is worthy to be
" adored*.

" Now

* HERE the ZARADO probably alludes to DEVADAT, as the *Răhāns* call JESUS CHRIST. The *Siammese* painter before-mentioned told me, that DEVADAT, or, as he pronounced it, TEVEDAT, was the god of the *Pye-gye*, or of *Britain;* and he conceived, that it is he who, by opposing the good intentions of GODAMA, produces all the evil in the world. I I am inclined to believe, that the legend of TEVEDAT, of which M. LOUBERE has given us a translation, has been composed since the arrival of the *Portuguese* in *India*, in order to prevent the propagation of their religion, so well adapted, by its splendour and mysteries, to gain the belief of an ignorant people. Some antiquarians have thought, that much light may be thrown on the history of *Hindustan* by the legends of the gods as delivered by the *Brahmens:* but much caution would be necessary, even when for such a purpose we made use of the less miraculous legends of the *Burma* heroes, who are the same with the gods of the *Brahmens:* for it is reasonably to be suspected, when they want to serve any particular purpose, that both *Răhāns* and *Brahmens* bring out occasionally either a new legend, or an addition to an old one. In so doing, the *Brahmens* are indeed perfectly safe; for if ever there were any historical writings among the *Hindus*, they have long since been destroyed. The arguments of PAULINUS (*Mus. Borg.* pag. 121 et seq.) on this subject deserve much attention, although to many he will appear to have pushed his conclusions farther than his arguments will warrant. It is to be regretted, that the vigilant zeal of the father should have induced him to forget the civility due to adversaries, and to be uncandid in attributing improper motives to those, who happen to differ from him in opinion.

"Now all these false gods or deitti taught such "things, not because they believed them to be "true: but in order to answer questions which "had been proposed to them, they said whatever "at the time came into their minds.

"*Q*. When the true god GODAMA appeared, did not "the false gods renounce their doctrines?

"*A*. Some of them did: but others still continue "obstinate: and with all these GODAMA fought in "the kingdom *Saulti* near the tree *Manche*: what "greater miracle can be performed*?

"*Q*. In this conflict who gained the superiority?

"*A*. GODAMA did: on which account the ringleader "of the false gods was so ashamed, that tying a pot "about his neck, he threw himself into a river, "and was drowned.

"*Q*. The master being dead, did his followers re-"nounce his doctrine?

"*A*. Some of them renounced his doctrine: but "others did not. It is easy with your nails, or "with *Megnap*†, to take a thorn out of your feet "or hands: but it is very difficult to pluck forth "from the minds of men the doctrines of false gods.

"*Q*. Cannot this be done by any means?

"*A*. The warnings of just men, like the *Megnap*, can "only effect it.

"*Q*. What are the warnings and doctrines of these "just men?

"*A*. In the first place, whoever kills animals, or "commits the other wicked actions, which are con-"trary to the five commandments, is liable to the "lot

* THIS conflict of GODAMA with DEVADAT, and the other deitti, PAULINUS imagines to be the same with the doctrine of the *Magi* concerning ORMUZED and ARIMANIUS (*Mus. Borg.* pag. 51): which appears to me to be nearly as improbable, as the opinion of the *Rāhāns* concerning the identity of JESUS CHRIST and DEVEDAT. In the *Titans* of the *Grecians*, the father also discovers this doctrine of the *Magi*. However these same *Titans*, with perhaps as much probability, are alleged by Governor POWNEL to have been a hord of savages from the north, under the command of their *Hetman Briareus*.

† THE instrument with which the *Burmas* pluck their beards.

"lot of evil deeds: but whoever beſtows alms, "practiſes the ten virtues, and adores god and the "*Răhāns*, will obtain the lot of good deeds. In "the ſecond place, in the ſame manner as the "ſhadow and body are inſeparable, ſo during all "the ſucceſſive deſtructions of future worlds, theſe "lots of good and evil inſeparably follow all living "beings, and are the ſufficient cauſes of all the "good and evil, by which theſe beings are effected: "from theſe lots beings are born noble, or ignoble; "from them men paſs into animals, or into *Nat*. "This is the doctrine revealed by GODAMA, and "it is called the doctrine of SAMMADEITTI. This "doctrine is the great *Megnap*, or nail, which com-"pletely plucks forth from the minds of men the "thorns of the deitti. O ye maſters and wiſe men "of all nations, *Armenians*, *Engliſh*, *French*, and "*Dutch*, proclaim it to all living beings!

"*Q*. Did theſe ſix falſe gods, who taught that it is "good to honour our parents and teachers, to "ſuffer heat, cold, and the like, receive no benefit "by the performance of ſuch actions?

"*A*. As when any one eats bitter fruit, which he "ſuppoſes to be ſweet, in the act of eating he does "not find it ſweet, but on the contrary bitter: or "as when any one drinks mortal poiſon, thinking "it to be a valuable medicine, his ſo thinking "does not prevent his death: ſo it is with theſe "ſix deitti, who pretended to be gods, and did not "abjure their doctrine; although they endured "hunger, thirſt, heat, and cold, thinking ſuch to "be good, yet have they received no advantage, "but have paſſed into the infernal regions, where "they ſuffer many evils and tortures. Therefore, "O ye teachers of the *Engliſh*, *Armenians*, *Dutch*, "and others, and ye the wiſe men of all nations, "take heed to the above example, and like lights "in a dark place teach others, who wander in the "errors of the deitti, ſo that they may eſcape from "theſe, as from an inhoſpitable and deſert path, "and arrive at the ample and ſtraight road of the "true doctrine and faith.

" *Q.* What is the doctrine, and law, which Godama
" delivered to be observed by all men?
" *A.* It consists chiefly in observing the five com-
" mandments, and in abstaining from the ten sins.
" *Q.* What are the five commandments?
" *A.* I, From the meanest insect up to man, thou
" shalt kill no animal whatever. II, Thou shalt
" not steal. III, Thou shalt not violate the wife
" or concubine of another. IV, Thou shalt tell
" nothing false. V, Thou shalt drink neither wine,
" nor any thing that will intoxicate; thou shalt
" not eat opium, nor other inebriating drug.
" Whoever keeps these five commandments, during
" all successive transmigrations, shall either be born
" a nobleman, or *Nat;* and shall not be liable to
" poverty, nor to other misfortunes, and calamities.
" *Q.* What are the ten sins?
" *A.* These are called by the common appellation
" *Duzzaraik*, and are divided into three classes. In
" the first class are comprehended the works which
" are contrary to the commandments; namely,
" I, the killing of animals; II, theft; III, adul-
" tery. In the second class are contained; IV,
" falshood; V, discord; VI, harsh and indignant
" language; VII, idle and superfluous talk. To
" the third class belong, VIII, the coveting of
" your neighbours goods; IX. envy, and the de-
" sire of your neighbours death, or misfortune;
" X, the following of the doctrine of false gods.
" He who abstains from these sins, is said to ob-
" serve *Sila:* and every one who observes *Sila* in
" all successive transmigrations, will continually
" increase in virtue, till at length he will become
" worthy of beholding a god, of hearing his great
" voice; and thus he will obtain *Nieban*, and be
" exempted from the four known miseries, namely,
" weight, old age, disease, and death. We must
" also believe, that Godama taught, if we observe
" his laws, we shall see the other gods, who are to
" arise after him.

" *Q.* Besides

" *Q.* Besides these already mentioned, are there any
" other good works which ought to be practised?
" *A.* There are. One good work is called *Dana;*
" a second is called *Bavana.*
" *Q.* In what consists *Dana?*
" *A. Dana* consists in giving alms, particularly to
" the *Răhāns.*"
" *Q.* In what consists *Bavana?*
" *A.* It consists in thoughtfully pronouncing these
" three words, *Aneizza, Doccha,* and *Anatta.* By
" the word *Aneizza* is understood, that he who
" pronounces it, recollects, that by his particular
" situation he is liable to vicissitudes: by the word
" *Doccha* is understood, that by the same situation
" he is liable to misfortune; and by the word
" *Anatta,* that it is not in his power to exempt
" himself from being liable to change and to mis-
" fortune. Whoever dies without having observed
" the *Sila, Dana,* and *Bavana,* will certainly pass
" into one of the infernal states, and will become a
" *Nirea,* a *Prietta,* or some animal.

" Every one, who dies without the merit of some
" good action, performed during his life, may be
" compared to him, who, without a store of pro-
" visions, travels through inhospitable deserts: to
" him, who without arms, penetrates into a place
" abounding in robbers or wild beasts: to him
" finally, who in a small and leaky boat, attempts
" to pass a vast, tempestuous, and whirling river.

" Moreover whoever, either priest or layman, gives
" up himself to the five carnal works, or to the
" pleasures received by the five senses, who does
" not observe the five commandments, and who
" does not abstain from the ten sins called *Duzza-*
" *raik,* is like a moth, which attracted by the shining
" of a candle, flutters round the light, till it perishes
" in the flame: or he is like a person, who seeing
" a spot of honey on a sword, is unmindful of the
" edge, and in licking the honey cuts his tongue,
" and dies: or he is like a bird, who, eager for the

" bait

" bait, does not perceive the ſpringe laid for it: or
" like a ſtag, who running after the female, obſerves
" not the arms nor the ſnares of the hunter. This
" perſon not attending to future danger, but ſolicited
" by the five carnal delights, will either paſs to the
" infernal regions, or will tranſmigrate into an animal.
" By ſuch ſimilitudes did GODAMA teach.

" Revolving theſe things in your minds, O ye
" *Engliſh*, *Dutch*, *Armenians*, and others, adore Go-
" DAMA the true god; adore alſo his law, and his
" prieſts; be ſolicitous in giving alms, in the obſer-
" vance of *Sila*, and in performing *Bavana*. But a
" true and ligitimate prieſt of GODAMA is not to be
" found except in this empire*, or in the iſland of
" *Ceylon*: and you, O biſhop, have obtained a great lot,
" who have been thought worthy, although born in
" one of the ſmall iſlands depending on *Zabudiba*, to
" come hither, and to hear the truth of the divine
" law. This book, which I now give you, is more
" eſtimable than gold and ſilver, than diamonds and
" precious ſtones: and I exhort all *Engliſh*, *Dutch*,
" *Armenians*, and others, faithfully to tranſcribe its
" contents, and diligently to act according to the pre-
" cepts therein contained.

" THE title aſſumed by the writer of the above
" treatiſe was I ATULI ZARADO, great-maſter of the
" king of the nine provinces of the *Shan*, of the
" province of *Cuſſay*, of the three provinces of *Giun*
" *Yun* and *Han*, of the three provinces of *Pegu*, and
" of the ſeven provinces of *Burmas*: prince of the
" golden umbrella, of the palace of the ſun and moon;
" and alſo ſupreme lord of the white elephant, of the
" red elephant, of the black elephant, &c. &c. &c."

OF THE PRIESTHOOD.

THESE titles of the chief prieſt of the country lead me to deſcribe that order of men, ſo intimately connected with religion and learning.

* *Siam* was then ſubject to the *Burmas*.

All the priefts of Godama are properly what in a *Roman* catholic country would be called regulars. There are no fecular or officiating priefts, having charge of the worfhip of the lay part of the community. Thefe priefts, by *Europeans* commonly called *Talapoins*, and by *Mohammedans*, *Raulins*, are in the *Burma* language called *Răhāns*, and in the *Pali*, *Thaynka*. This is the proper name, as in *Europe* fimilar priefts are called monks: but as in catholic countries the monks from refpect are commonly addreffed by the title of father; fo among the *Burmas* the *Răhāns* are commonly fpoken to by the name *Poun-gye*, which fignifies great virtue.

Somona or *Samana* is alfo a title beftowed on the priefts of Godama, and is likewife applied to the images of the divinity, when reprefented, as he commonly is, in the prieftly habit. From this name the whole fect of Bouddha have been by many called *Samanians*, a name frequently mentioned by the antient writers, and faid to be derived from the *Sanfcrit* word *Saman*, fignifying gentlenefs or affability*. The learned Paulinus fuppofes the *Samanians* and *Magi* to have been the fame, an opinion which he has been by no means able to render probable. The accounts of the religion of the *Samanians*, as extracted from the writings of the *Răhāns* by Sangermano, the treatife of the Zarado, and the book *Kammua*, in my opinion fhow the two fects to be effentially different. The *Magi* believed in two principles, the one producing all the good, the other all the evil in the world. The former they compared to light or fire, and worfhipped the fun and fire, as emblematical of the beneficent principle: but they worfhipped no images. They were much addicted to aftrology, and have even given their name to all pretenders to fupernatural powers. But the *Samanians* confider every thing as arifing from fate by means of water, and look on their divinity as merely a great moral teacher. Devadat they do not efteem a principle of nature,

* Paulinus *Mus. Borg.* pag. [illegible]

nature, but a wicked person now undergoing the punishment of his crimes; and who has involved mankind in sin and misfortune by teaching a doctrine contrary to that of GODAMA. Indeed the little mention made of him in the cosmography, in the book *Kammua*, and by the ZARADO, show that he is not so essential a being in the doctrine of *Răhāns*, as ARIMANIUS was in that of the *Magi*. Besides the *Răhāns* worship images; and are so far from adoring fire, they never kindle one, least they should destroy the life of some animal. Magic and astrology they also abhor, and detest bloody sacrifices. The *Magi*, on the contrary, sacrificed animals. There is even reason to believe,* that human sacrifices were common among the followers of ZOROASTER, and by them introduced into the horrible rites of a great part of the ancient world. I therefore conclude that the *Magi* were a different sect from the *Samanians*; and I doubt not, that they were a sect of much greater antiquity.

PAULINUS also supposes the religion of the *Magi* to be the same with that of the *Brahmens*, or of antient *Egypt*,† but in this too I think he is mistaken. The good and bad principles of the *Magi*, and their want of images, of the personification of the deities, and above all, of cast, are great differences. Besides, the two systems are considered as distinct by the antients, who surely were the best judges. The religion of the *Magi*, PAULINUS, with great probability, contends ‡ came from *India* to *Persia* in the reign of CYRUS, about 560 years before the birth of CHRIST, and from *Persia* was afterwards dispersed over the western nations. || How then could the father suppose the doctrine of the *Magi* to be the parent of the religion of *Egypt*? a religion which had subsisted there, and had been transferred to *Greece*, certainly many ages before the invasion of *Cambyses*.

T 2 THESE

* PLINII Natur. Histor. lib. 30, cap. 1. † Mus. Borg. pag. 188.

‡ Mus. Borg. page 141.

|| This is confirmed by the opinion of PLINY (lib. 30, cap. 1.), who thought, that magic was first introduced into *Europe* by the army of XERXES.

These *Răhāns* live together in convents or colleges, by them named *Kiaung*, which are by much the beſt habitations in the empire. They are, as far as I could judge, very decent in their lives, remarkably kind and hoſpitable to ſtrangers, the beſt informed men in the country, and very highly reſpected by the inhabitants. Every college has a head named *Zara*, of which the literal meaning is reader; but the name may be tranſlated abbot; though by the *Portugueſe* miſſionaries theſe ſuperiors of convents have been more commonly ſtyled biſhops. As every great perſonage builds a *Kiaung*, and procures the *Răhān*, who is his ſpiritual guide, to reſide in it as ſuperiour; ſo there comes to be a kind of diſtinction in rank between the different *Zaras*: thoſe who preſide over convents built by the powerful and rich, having more ſpacious colleges, and more *Răhāns*, under their authority in conſequence of better accommodation, and greater means of ſubſiſtence, are no doubt more reſpected than thoſe who are at the head of *Kiaungs* built by perſons of leſs diſtinction. In a particular manner is reſpected the Zarado, or royal abbot, who may be likened to the king's confeſſor. His apartments are very ſuperb, his attendants very numerous: next to the king he is the perſon to whom the greateſt external homage is paid: and he is permitted to ſleep under a *Pyathap*,* a dignity not enjoyed by even the king's eldeſt ſon, who already poſſeſſes one half of the imperial power. But although theſe heads of colleges have thus different degrees of dignity, according to the rank of the perſon whoſe ſpiritual teachers they are; yet I underſtood, that every *Zara* managed the affairs of his own college without any appeal to the ſuperiour of the governor's convent, or even to the Zarado. What power the *Zaras* have over the *Răhāns*, who live in their own convents, I do not know; but it is probably conſiderable, as they receive from their inferiours great marks of ſubmiſſion and reſpect.

The

* A kind of gilded ſpire in ſeveral ſtages, and ending in an obeliſk.

The respect given by the lay inhabitants to all *Răhāns* is very great. The road on all occasions is yielded up to them; they are almost always addressed by the names of *Poungye* and *Bura;* and in their convents they are permitted to use painting and gilding, things prohibited to every other subject: nay, they are even in some cases permitted to plaster the outside roofs of their *Kiaungs* white, and white is the royal colour, the most distinguishing of all royal insignia, and common only to God and the king. Although the priests are thus honoured, yet even the highest of them retain the greatest simplicity in their manners. The dress of the Zarado, when we had the honour of visiting him, did not differ from that of the prostrate multitude, by which he was surrounded. I was told also, that when some years ago he was at *Rangoun*, he used, like other *Răhāns*, to perform his rounds barefooted, and to receive from door to door the rice that was offered as alms. In this perhaps there was somewhat more than humility; as wherever he went, the streets were covered with cloth, and the men were prostrated imploring his blessing; while the women kept out of his way, as too imperfect beings to be in the presence of a man so weaned from the pleasures of the senses. He is however a person of mild and agreeable manners, and seems well informed; but with a considerable affectation of meekness, and of contempt for worldly cares. At *Loungye* I met with a *Zara* of my acquaintance begging rice in the same manner as the inferiours; and although he was an old infirm man, he had ventured out to a considerable dstance, and that in rainy weather.

I have already mentioned the charity of the *Răhāns*, which is exerted especially towards strangers; consequently there is no country, where a stranger, unacquainted with every one, and an outcast, would be less likely to suffer want than in the *Burma* empire: nor during my stay there did I see one common beggar. In the neighbourhood of convents, the pious

 founders

founders generally build houſes for the accommodation of ſtrangers and travellers. These houſes are commonly very good defences againſt the weather; nay, many of them are very handſome. Any perſon may there paſs the day or night, and he is ſure of being kindly received by the *Răhāns*, and of being by them ſupplied with proviſions. Beſides this virtue, the *Răhāns* are very humane, and in conſequence have often diſputes with the magiſtrates. It is a law, that no criminal can be executed within the gates of a city: nor can he be put to death, ſhould a *Răhān* touch him when leading to the place of execution. This privilege the *Răhāns* often exert; and although they no doubt are ſometimes bribed thus to ſave a bad man, yet I believe they much oftener interfere to prevent injuſtice. Another great virtue of the *Răhāns* is toleration. From the diſcourſe of the ZARADO, it is evident, that they wiſh to make converts to the religion of GODAMA, and that they think their religion intended to ſave all men who are willing to believe: but I never ſaw nor heard of any attempt by the *Răhāns* to uſe violence in this converſion; or to hinder any man from worſhipping God in whatever manner he thought proper: we every where ſaw tolerated the church, the moſque, and the pagoda: and their prieſts publickly permitted to uſe their peculiar dreſſes, and even to aſſume in their houſes thoſe kinds of roofs which are appropriated to officers of conſiderable rank. Religious proceſſions are publickly made by foreigners; and many infidels are admitted to hold publick offices, and places of ſome diſtinction: nay, ſome of theſe officers are allowed to preſide at games inſtituted in honour of religious feſtivals.

As far as I could learn, the *Răhāns* do not at all officiate in the temples, like the pariſh prieſts or ſecular clergy of *Europe*. Very few of them were preſent at any of the religious ceremonies or proceſſions that I ſaw; not even in thoſe made at the conſecration of a young prieſt. Neither did I ſee many of them at the temples

temples, either on holy days, or at other times: and although ſome of their convents are generally ſituated in the neighbourhood of the greater temples, yet that is by no means univerſally the caſe: nor did I ever ſee any of them, who appeared to take charge of a temple, or of the images belonging to it. Their time ſeems to be employed in inſtructing the youth in reading, writing, and acquiring ſuch knowledge as the nation poſſeſſes, eſpecially in religion, hiſtory, and law; and in ſoliciting proviſions for themſelves, and for the needy. Their religious worſhip, I believe, they almoſt always perform within the walls of their own convents: in all of them they have images, to which at the uſual times they chaunt their prayers.

It is ſaid, that formerly there were convents of women, who entered into orders while young virgins, who continued for life to obſerve celibacy, and all the rules of the *Răhāns*, and who were dreſſed in yellow. This has been aboliſhed, probably by the policy of the kings now governing in eaſtern *India*, who think, by the pleaſures of a number of women, to allure men into their ſervice. And now a few old women only enter into a kind of orders, ſhave their heads, and aſſume a white dreſs. Theſe attend on the temples and on funerals, and are a kind of ſervants to the *Răhāns*: although they never live within the walls of their convents. The *Pali* books, however, containing the form of admitting women into the ſacerdotal order, and the rules for their conduct, are ſtill to be found in the libraries of the *Răhāns*.

In order to give a clear idea of the manner of life and duties preſcribed to the *Răhāns*, I cannot do better than inſert a tranſlation of a *Latin* verſion of the canonical book called *Kammua*. An elegant copy of the original *Pali* was ſent by the king to Sir John Shore. The whole I ſhall endeavour to explain by notes: and to thoſe who wiſh to enter more into particulars, I would recommend M. de la Loubere's

 tranſlation

tranſlation of the maxims of the *Talapoins*, given us in his invaluable account of the *Siammeſe* kingdom. It muſt be obſerved, that a tranſlation of the *Kammua*, which is contained in the collection of Cardinal Borgia,* ſeems to differ in ſome particulars from that given by father Sangermano. In the latter, no mention is made of fire and water being the principles of all things, of the purifications of the *Răhāns* by fire and water, of theſe prieſts paſſing their time entirey abſorbed in a meditation of the Supreme Being, or of the confeſſion of ſins on the days of the full and new moon. Father Paulinus alleges the *Borgian Kammua* to contain all theſe circumſtances: and I can only account for ſuch a difference by ſuppoſing, that they are not contained in the original work, but in the explanatory gloſſary, which is ſaid to accompany the *Borgian* copy. I never, however, heard of theſe doctrines prevailing among the *Răhāns*: nor is there any hint given of them in the coſmography of Sangermano, or in the treatiſe of the *Zarado*.

TRANSLATION of KAMMUA-ZA, or the BOOK KAMMUA.

"In the ceremony of ordination, before the *Sabeit* †
" is delivered to the candidate, he muſt approach his
" maſter *Upize* ‡, and ſay three times, 'Lord, are
" not you my maſter *Upize?*' He is then ordered to advance

* Paulinus *Mus. Borg.* pag. 84.

† The *Sabeit* is a round black covered veſſel, generally made of lacquered baſket-work, and uſed by the prieſts in their morning rounds to receive the alms of the charitable.

‡ At ordination there are aſſiſting a great number of *Răhāns*, and the *Upize* is one of the eldeſt preſent, and preſides in the aſſembly. It would appear from the account of M. de la Loubere, that in *Siam*, ordination can only be performed by a particular kind of ſuperior, named *Sancrat*. Perhaps *Sancrat* and *Upize* may mean the ſame rank: although I did not underſtand, that among the *Burmas* it was neceſſary for the *Upize* to be a *Zara*, much leſs that there was any diſtinction of rank among theſe ſuperiours, farther than what has been already mentioned.

"advance to the *Kammuazara**; and having ap-
"proached near, he is thus interrogated:"

Kammuazara. "O candidate, is this your *Sabeit?*"
Candidate. "Verily my lord it is."
Kam. "O candidate, is this your garment?"
Cand. "Verily my lord it is."

"THEN ſhall the *Kammuazara* ſay, Retire from
"this, and wait at the diſtance of twelve cubits. He
"ſhall then read, addreſſing himſelf to the aſſembly
"of prieſts, Let the aſſembly of prieſts hearken to
"my words. The preſent candidate humbly aſks
"from his *Upize* the ſacerdotal rank: and ſurely this
"is now both a convenient time and place for ordi-
"nation. In the mean time I will admoniſh the can-
"didate. You O candidate hearken. At this it is by
"no means allowed you to tell falſehoods, or to con-
"ceal the truth. There are certain defects, which
"are contrary to the prieſthood, and which prevent
"any perſon from being received into the prieſtly
"order: and as you are now before this aſſembly of
"*Răhāns* to be interrogated concerning theſe defects,
"you muſt anſwer truly, and declare, what defects
"are in you, and of what nature they are: what de-
"fects you have not, and in what manner you are
"free from them. Do not be ſilent: but, leſt you
"ſhould be hindered by fear or ſhame, bend down
"your head. Now all thoſe in the aſſembled coun-
"cil are about to interrogate you.

"THEN ſome prieſts in the aſſembly ſhall thus
"interrogate the candidate.

Prieſt. "O candidate, are any of the following diſ-
"eaſes on you? Are you afflicted with the lepro-
"ſy, or with any other foul diſorder?

Candidate. "My lord I have no ſuch diſorder.

Prieſt.

* The reader of the book *Kammua*.

Prieſt. " Have not you the ſcrophula, or ſome kind " of herpes?

Cand. " My lord I have not any ſuch diſeaſe.

Prieſt. " Have you not the ſchirrhus, cancer, or itch?

Cand. " My lord I have not.

Prieſt. " Are you afflicted with the aſthma, or cough?

Cand. " My lord I am not.

Prieſt. " Are you not maniacal, or do you not labour " under thoſe diſeaſes which proceed from a cor- " rupted blood, or from the influence of giants, " *Lamia*, or evil ſpirits, or of the *Nat* of the woods " and mountains?

Cand. " I do not my lord.

Prieſt. " O candidate, are you a human being?

Cand. " I am a human being my lord.

Prieſt. " Are you a male?

Cand. " I am a male.

Prieſt. " Are you a lawfully begotten ſon?

Cand. " I am a lawful ſon.

Prieſt. " Are you not in debt?

Cand. " I am not my lord.

Prieſt. " Are you not the dependant of ſome officer?*

Cand. " I am not my lord.

Prieſt.

* From theſe queſtions it will appear, how anxious the *Răhāns* are not to render the order of prieſthood diſreputable, by admitting into their fraternity low people, or ſuch as have loathſome diſeaſes. But there are alſo other reaſons for the reſtrictions here impoſed. Celibacy would have no merit in a perſon deprived of his virility: beſides impotence, although an involuntary misfortune, is almoſt always viewed with contempt. It would be injuſtice to admit perſons in debt, or dependants on great men; for the creditors could not afterwards recover their debt by ſelling the *Răhān*: and all the dependants on the *Burma* nobles are in their debt. But the great object of thus confining the prieſthood to the higher ranks probably is, that at the conſecration, the parents may be enabled to give handſome preſents to the convent. In fact, the ordination of a ſon to the prieſthood generally coſts the family more than his marriage, and ſetting up in the world, would do: fifty or ſixty *Peiththa* of ſilver (from 210 to 260 lb. weight) is ſaid not to be uncommon for a wealthy man in a provincial town to expend on ſuch occaſions.

Prieſt. " Have your parents given you leave?
Cand. " They have my lord.
Prieſt. " Have you compleated your twentieth year?
Cand. " My lord I have compleated it.*
Prieſt. " Have you not in readineſs your *ſabeit* and " garments?
Cand. " They are ready my lord.
Prieſt. " How are you called?
Cand. " I am called *Naka*; that is to ſay, candidate.
Prieſt. " What is the name of your maſter *Upize*?
Cand. " My maſter *Upize* is called *Aſſeienteitatrit*, " or excellency.

" AFTER theſe queſtions the reader of *Kammua* " ſhall again ſay, Moſt virtuous lord and prieſts here " aſſembled, I beſeech you to hear my words. This " candidate humbly begs from his *Upize* to be admit- " ted into the ſacred order, and I have already given " him admonition. Now certainly a very conveni- " ent time for my lords has arrived: the candidate " ought therefore to approach the aſſembly, and beg " this order from them. The prieſts ſhall then ſay, " Approach. The candidate ſhall approach, and ſay, " I aſk the order of prieſthood from the *Răhāns*. " My lords, if you have compaſſion on me, ſnatch " me from the lay ſtate, a ſtate of ſin and error; and " appoint me to the ſacerdotal ſtate, a ſtate of virtue " and perfection; and three times ſhall the candidate " pronounce theſe words. Then ſhall the *Kammua-* " *zara*

* THIS regulation is very commonly neglected. Rich men, who wiſh to give their ſons a good education, generally make them *Răhāns* about the age of twelve or fourteen years: and the youths continue in the college till they be twenty-four, or twenty-five. Being then fit for buſineſs, they leave the convent, and marry: for it is in the power of a prieſt to relinquiſh his order whenever he pleaſes, and to return to the world: and this he does without incurring any conſiderable ſcandal. The poorer ſort of people ſend their boys to the convents, where as menial ſervants they attend on the *Răhān* who acts as their maſter, inſtructing them to read and write: and there are very few men in the country who are not able to do both with facility. Fewer women learn theſe accompliſhments; but ſtill there are many who do, and who are very well informed in ſuch learning as the *Burmas* poſſeſs.

" *zara* ſay, My virtuous lords here aſſembled, attend
" to my words. This candidate has aſked from his
" *Upize* the ſacerdotal rank : and he, who thus aſks,
" is without any defect or impediment, and has pre-
" pared all neceſſaries*. The candidate alſo in the
" name of his *Upize* beſeeches the aſſembly, that they
" would ſpeedily make him a prieſt. Is it conveni-
" ent and expedient for the aſſembly in the name of
" the *Upize* to confer on this perſon the order of
" prieſthood? To whatever perſon this appears con-
" venient let him be ſilent; but if the candidate to
" any one appear unworthy of the rank, let that per-
" ſon ſpeak. The reader ſhall thrice repeat theſe
" words, beginning with My virtuous lords, &c.
" He then ſhall proceed, and ſay, Now ſince none
" of the prieſts ſpeak, but all are ſilent, it is a ſign,
" that it is proper for this candidate from a ſtate of
" imperfection and ſin to paſs into the ſtate of per-
" fection, from the ſtate of a layman into that of a
" prieſt: and it is a ſign, that in the name of the
" *Upize* the aſſembly are reſolved to make this can-
" didate a prieſt. Therefore by the conſent of the
" *Upize*, and of all the aſſembly, this perſon is here-
" by ordained a prieſt.

" The reader afterwards proceeds, and ſays, The
" fathers ought to mark under the ſhade of what ſoot,
" in what day, in what hour, in what ſeaſon, whether
" ſummer or winter, whether in the morning or even-
" ing, this perſon has been ordained a prieſt. And
" moreover the newly ordained prieſt is to be admo-
" niſhed concerning the four things which prieſts are
" allowed to do, and the four things which they
" are

* These neceſſaries are the *Sabeit*, a proper yellow garment, a large fan ſerving for an umbrella, a mat and pillow for a bed, a bucket to draw water, and a bottle to keep it, a drinking cup, and a chamber pot. This utenſil is peculiar to the *Răhāns*, and not uſed by any of the other inhabitants: the *Răhāns* being afraid of killing ſome inſect by performing on the ground their natural functions.

" are prohibited from doing. Wherefore, I the reader
" admoniſh him in theſe words.

" In the firſt place the ſacerdotal order conſiſts in
" eating that food only which is procured by the la-
" bour and motion of the muſcles of the feet. Where-
" fore it behoves you, O young prieſt, during the
" whole courſe of your life, to ſtruggle, that you may
" live on food procured by the labour of your feet.
" But if alms and offerings abound, that is to ſay, if
" your benefactors come to you, and offer food, you
" may lawfully uſe the following kinds of proviſions:
" 1ſt, all kinds of food, that are offered to *Răhāns* in
" general; 2d, proviſions that are offered to you in
" particular; 3d, proviſions which are ſent along with
" a letter; 4th, proviſions that are offered on the days
" of the full and new moon; 5th, proviſions given on
" feſtivals by your benefactors. Of all theſe provi-
" ſions you may lawfully eat. The new prieſt ſhall
" anſwer, Verily my lord I have heard.*

" The

* In fact, the *Răhāns* are allowed to eat every thing, which they receive as a preſent, provided it be ready dreſſed; for they never kindle a fire, for fear of deſtroying ſome life. What is meant by procuring their food by the labour of their feet, is this: every morning, as ſoon as they can diſtinguiſh the veins on their hands, the whole *Răhāns* iſſue from their convents, each with his *Sabeit* under his arm. They ſpread themſelves all over the neighbouring ſtreets and villages, and as they paſs along, ſtop a little at the different doors, but without ſaying a word. If the people of a houſe are diſpoſed to be charitable, or have not already given away all that has been prepared for the purpoſe, a perſon, generally the miſtreſs of the houſe, comes out, puts the ready dreſſed proviſions into the *Sabeit*, and the *Răhān* goes on ſilent, and without returning thanks. Nor does he ever ſolicit for any thing, ſhould it not be convenient or agreeable for a family to beſtow alms: but after ſtanding for a few minutes proceeds on his round. So delicate are they in this particular, that it is ſinful for a *Răhān* on ſuch occaſions to cough, or make any ſignal, by which he might be ſuppoſed to put the laity in mind of their duty. To the greater part of convents however ſuch begging is not neceſſary for a ſubſiſtence, as the offerings ſent to the different *Răhāns*, by the perſons whoſe ſpiritual guides they are, to the ſons of the wealthy by their parents, and to the whole on holy days and feſtivals, are generally more than ſufficient for their own maintenance. As they literally take no care for to-morrow, the ſuperfluity they daily give away to animals, to the poor, and to needy ſtrangers or travellers. However, that they may be able to ſupply theſe various demands, and comply with the letter of this law,

" The reader then proceeds. In the ſecond place
" the order of prieſthood requires the uſe of garments
" covered with duſt, of garments which have been
" thrown into public ſepulchres: wherefore, O young
" prieſt, you muſt, during your whole life, uſe ſuch
" garments as are ſtained with the duſt of the field.
" However, if induced by your learning and teach-
" ing, many benefactors reſort to you, then are you
" permitted to uſe the following cloaths in your dreſs;
" namely the cloths called *Choma;* cloths made of
" cotton, ſilk or wool; cloths made of the bark of
" certain trees; cloths made of the feathers of certain
" birds. It is lawful for you to uſe all the above-
" mentioned cloths. The new prieſt anſwers as before.*

" The reader then proceeds. In the third place,
" the ſacerdotal rank requires its members to live in
" houſes conſtructed under the trees of the woods.
" Therefore, O newly ordained prieſt, you ought du-
" ring the whole of your life to inhabit ſuch houſes.
" Neverthelеſs, if your genius and doctrine attract
" many benefactors, you may inhabit houſes of the
" following

law, even when they are in no want of proviſions, the *Răhāns* make their daily rounds. In conſquence we find in the *Burma* dominions none of thoſe well endowed convents in retired places, ſuch as are in many parts of *Europe:* but the convents are always in the neighbourhood of towns, and always in proportion to the wealth and number of inhabitants. The fineſt *Kiaungs* in old *Ava* are now deſerted, and their gilded halls have become the habitations of outlaws and unclean animals. Hence alſo it is, that near many of the moſt celebrated temples there does not live a ſingle *Răhān*. *Kaungomudo* and *Shue Loga tharabu* are both temples of great dimenſions, and high celebrity; and at certain ſeaſons vaſt multitudes of the laity reſort thither on account of their ſuppoſed ſanctity: but at preſent there is not in their vicinity a ſufficient number of inhabitants to ſupport a convent, and therefore no *Răhāns* live near them.

* Several of theſe cloths I have never ſeen: but the *Răhāns* are well cloathed with a large yellow or yellowiſh mantle, which they throw round them in a decent and becoming manner. Under this they have ſeveral ſmaller pieces of dreſs, which however I never obſerved with ſufficient accuracy to enable me to deſcribe. They ſhave the head and beard, are very clean in their perſons, and always go bare-footed. None of them wear jewels, or ornaments of gold or ſilver. In hot weather, I never ſaw them indulge themſelves by expoſing their naked bodies; much leſs do they, like the jogies of *Hinduſtan*, ever expoſe their nudities; but are ſingularly modeſt and decent in their dreſs and behaviour.

"following kinds: namely, houſes ſurrounded with
"walls;* houſes ending in a pyramid;† ſuch houſes
"as are triangular or four ſided; ſuch as are adorned
"with flowers and figures carved in wood;‡ ſuch as
"are built with arches.|| In ſuch, and the like houſes,
"you may for the future dwell. The newly ordain-
"ed prieſt anſwers as above.§

"AGAIN the reader ſays, in the fourth place, O
"new prieſt, during the whole courſe of your life,
"you are only to uſe ſuch remedies as men have
"thrown away for being uſeleſs. However, if your
"virtue, and manner of teaching, procure you bene-
"factors, you are permitted to uſe as remedies, but-
"ter, milk, whey, oil, honey, ſugar, ſyrup, and the
"like. The new ordained prieſt anſwers, Verily my
"lord I have heard ¶."

"AGAIN the reader of *Kammua* ſays, Since you
"have

* SUCH houſes are not permitted to be uſed except by perſons of very high rank.

† SUCH houſes are only permitted to God, the king, and the *Răhāns*.

‡ THESE ornaments are only uſed in charitable or religious buildings, ſuch as *Kiaungs*, chapels, and the public buildings for the reception of travellers.

|| It is a ſingular circumſtance, that the art of conſtructing arches ſhould have been loſt among the *Burmas*. From many buildings, eſpecially at *Pougan* and *Gnaungoo*, it appears, that formerly they could conſtruct very excellent brick arches, both circular and gothic: but now no one in the empire can be found ſufficiently ſkilful to arch over the opening of a window. Maſonry indeed has fallen into neglect, the jealouſy of the late princes having prohibited to private individuals the uſe of brick or ſtone houſes.

§ I ſhall hereafter give ſome farther account of theſe buildings. Suffice it now to ſay, that I believe, none of the *Răhāns* live at preſent in the woods. Their *Kiaungs* are generally ſituated in the moſt agreeable places that can be found in the immediate neighbourhood of large villages, towns, or cities. The ſurrounding grounds are well cleared and incloſed, and generally contain many fine trees, eſpecially the tamarind, mango, coconut, and palmira. *Kiaung* is the name which I heard uſed for theſe buildings by every one in the *Burma* empire, except SANGERMANO, who uſed the word *Bau* or *Bao*. At the time I took this name to be ſome vulgar *Portugueſe* word: but I have ſince learned, (PAULINUS *Mus. Borg, pag.* 24.) that it is the *Pali* name for a convent, derived from *Bhava* or *Bhavana*, the *Sanſcrit* word for habitation.

¶ IN fact, I found the prieſts willing to take any medicine which I preſcribed.

" have been admitted into the order of prieſthood, " you are no longer permitted, after the manner of " laymen, to commit any carnal deed, either alone, " or with another, whether it be man, woman, or " beaſt. A prieſt who after the manner of laymen " commits ſuch actions, is no longer to be eſteemed " one, nor as appertaining to the divine order. To " what can ſuch a perſon be compared? In the ſame " manner as in a beheaded man the head can never be " again joined to the body, and ſo live; ſo the prieſt, " who after the cuſtom of laymen has committed for- " nication, or any ſimilar act, is cut off from the " prieſtly order, never more to be reſtored to their " number. It behoveth you therefore, O young " prieſt, during the whole courſe of your life, never " to commit ſuch deeds. The newly ordained prieſt " ſhall ſay, Verily my lord I have heard your words*.

" THE reader then ſays, It is by no means per- " mitted to a *Răhān* to ſteal, or to take to himſelf " even the value of a dram of ſilver. The prieſt, " who ſteals even ſuch a value, is to be eſteemed as " fallen from the prieſthood, and is no longer to be " numbered in the divine order. Such a prieſt may " be compared to the withered leaf of a tree: and as " this can never again recover its verdure, ſo the " prieſt, who ſteals even a dram of ſilver, no longer " can be eſteemed as belonging to that ſacred order. " Wherefore, O young prieſt, during the whole " courſe of your life, abſtain from theft. The young " prieſt anſwers as before.

" THE reader then ſays, It is unlawful for a prieſt " to

* FROM this it might be inferred, that unnatural practices were very common among the *Burmas;* and in various old accounts of *Pegu* we have mention made of ſuch having been the caſe, and of ſome very abſurd regulations having in conſequence been eſtabliſhed. At preſent, as far as I could learn, neither theſe regulations are obſerved, nor even in convents are at all practiſed the crimes on account of which they were impoſed. The preſent royal familiy have been too wiſe to truſt to ſuch frivolous devices, and the number of common women, which, under certain regulations, they permit in every conſiderable town, has probably been an effectual remedy for the greater vice.

"to take away the life of any animal, ſhould it be
"even the ſmalleſt inſect. The *Răhān*, who taketh
"away the life of the vileſt inſect, ſhall no longer be a
"prieſt, or of the divine order. To what thing can
"he be compared? He is like a great rock rent in
"two parts: as it is impoſſible that the rock ſhould
"ever again be united, ſo it can never happen, that
"he ſhould again be reckoned a prieſt, or of the di-
"vine order. Wherefore you, O newly ordained
"prieſt, ought to take care, during the whole courſe
"of your life, not to commit any ſuch murder.
"The newly ordained prieſt anſwers as before.

"THE reader of *Kammua* then ſays, Whoever is ad-
"mitted into the prieſthood, can by no means be per-
"mitted to extol himſelf as a ſaint, as a perſon endowed
"with any preternatural gifts; ſuch as the gifts called
"*Meipo* or *Zian*: Neither is it for him lawful to de-
"clare himſelf a hermit, or a perſon that loves ſolitude.
"The prieſt who, prompted by ambition, falſely and
"impudently pretends to have obtained the extraor-
"dinary gifts of *Zian* or *Meipo*, or to have arrived
"at *Nieban**, is no longer a prieſt of the divine
"order. To what can he be compared? In the
"ſame manner as a palm-tree cut through the middle
"can never be rejoined, ſo as to live; in ſuch man-
"ner ſhall this ambitious prieſt be unworthy of being
"eſteemed as belonging to the ſacred order. Where-
"fore, O young prieſt, during the whole of your life
"avoid ſuch criminal exceſs. The young prieſt
"ſhall anſwer, Verily my lord I have heard all, that
"even till now you have ſaid."

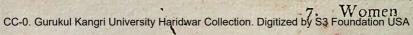
END OF THE BOOK KAMMUA.

THE month of *Namiaung*, the ſecond of the *Burma* year, is the ſeaſon in which young men are admitted

 into

* WE have already explained the meaning of *Zian* and *Nieban*. *Meipo* is ſaid to mean thoſe prerogatives, which are exerciſed by ſuch as, quite free from worldly thoughts, employ their time entirely in ſublime meditations. What a wide difference is here between the prieſts of the *Burmas* and of the *Hindus*!

into the prieſthood. While we were at *Rangoun* during this ſeaſon, I had frequently an opportunity of ſeeing part of the ceremony. For ſeveral days previous to aſſuming the habit, the young men's parents gave great entertainments. Sheds were built in the ſtreets oppoſite to their houſes, and under theſe were erected ſeats adorned with flags, and flowers natural and artificial. Here generally aſſembled four or five of the young candidates, dreſſed out in the moſt gaudy manner, and ſat admiring the ſupple motions of dancing girls, or laughing at the grimace of players and mimics. During this time, at leaſt once a day, the candidates went through the town in a proceſſion, conſiſting often of five or ſix hundred perſons. The following order, that I obſerved in one of theſe proceſſions, will give an idea of the whole.

1. Drums and *Burma* hautbois.
2. Young girls gaudily dreſſed, their heads adorned with tinſel, gum flowers, and the wings of an elegant beetle, the *Bupreſtis ignita* of LINNÆUS.
3. Well dreſſed young women, carrying on their heads baſons filled with fruits and flowers, an offering for the temple.
4. The fathers and male relations of the young men, with their attendants carrying their ſwords of ſtate, and other inſignia of royal favour. Among them was a ZAREGYE, an officer of conſiderable rank in the town.
5. Well dreſſed women carrying on their heads pots of rice, a preſent for the *Răhāns*.
6. Bamboo ſtages, each carried on four men's ſhoulders, and ſupporting an imitation of the *Padezabayn*. This conſiſted of a large upright bamboo, in the center, with many ſmaller fixed into it, in imitation of branches, which were ornamented with tinſel and gum flowers. An umbrella terminated the whole, and from the branches were ſuſpended the different kinds of utenſils which are uſed by the *Răhāns*: ſuch as *ſabeits*, fans, water-buckets, bottles, &c. &c.

7. Women

7. Women carrying on their heads pillows made of ſtuffed mats, ſome of them very fine. Theſe alſo were an offering to the *Răhāns*.
8. An offering of mats and ſmall carpets, which ſerve the *Răhāns* for beds. Theſe alſo were carried on women's heads.
9. Yellow cloth for the dreſs of the *Răhāns*, put up in rolls ornamented with flowers, and carried in the ſame manner.
10. The candidates, each carried by four men on a bamboo ſtage. They were richly dreſſed in velvet and gold lace, with many golden ornaments, and their heads were covered with tinſel and gum flowers.
11. A cart, drawn by two buffaloes, adorned with flags, flowers, and the like: and containing dancing girls, and a band of muſic.
12. The mothers and female relations of the young men.
13. Several officers of government with their attendants and badges of honour: but not in high dreſs. Among them was the *Akoonwun*, or collector of the land-tax of the province, an *Armenian Chriſtian*.

The whole was very gaudy, and muſt have coſt a great deal of money. The women were all well dreſſed in ſilk and muſlin. Many of them wore very fine muſlin, and had much gold and ſilver in their ornaments. All of them had good ſandals covered with ſcarlet cloth. Their deportment, although lively, was modeſt, and graceful. In many other proceſſions the candidates were mounted on horſeback.

After having thus for ſome days enjoyed the ſplendour and amuſements of the world, the young *Răhāns* muſt bid adue to the pleaſures of the ſenſes: they are conducted to the aſſembly of the *Răhāns* to be ordained; are deprived of all their ornaments, and of their hair, and aſſuming the yellow habit, leave behind, their parents and the world.

It will be obſerved, that no *Răhāns* aſſiſted in the proceſſions: and I may ſay the ſame of all the religious ceremonies which I ſaw the laity perform. On the grand feſtivals the laity endeavour to pleaſe God by all kinds of amuſements; by wreſtling, dancing, muſic, plays, and fireworks. On other occaſions they ſolicit GODAMA's favour by prayers and offerings at the temples.

AMONG the worſhippers of BOUDDHA, there are *So-ge*, or hermits, who pretend to a high degree of ſanctity, ariſing from a mortification of their paſſions and appetites. They ought to live in caves, woods, and ſubterraneous buildings, of which we ſaw many remains in the neighbourhood of *Gnaungoo*. It was one of theſe hermits, named MENU, who is ſaid to have formed the code of *Burma* laws, a fable probably invented to increaſe their authority. MENU was alſo, according to the *Brahmens*, the author of their laws; but the MENU of the *Brahmens* is, according to the two legends, as different from the MENU of the *Burmas*, as the two codes of laws are different in their juſtice and tendency. Theſe *So-ges* at preſent are not numerous in the *Burma* dominions, I not having ſeen one; but in *Hinduſtan*, under the name of *Jogies*, they are ſtill very common, and are highly indecent, from their going about the ſtreets, and entering all houſes abſolutely naked. They are not of the *Brahmenical* order, and to me ſeem to be the remains of the gymnoſophiſts mentioned by antient authors, and, I ſuſpect, often by inaccurate antiquaries, confounded with the *Brahmens*. PAULINUS every where in his account of the *Borgian* muſeum, confounds theſe *Zoges*, *Jogies*, or, as he wrote, *Yoguis*, with the *Samanians* or *Răhāns*: for this however he aſſigns no reaſon. Among the *Burmas* I always heard them diſtinguiſhed as two different orders. But in reality all religions have had their *Zoges*. Men who thought to acquire the favour of God by enduring miſery in this life, or who, by pretending to more than common ſanctity, and command

mand over their paſſions, have wiſhed to impoſe on the weakneſs of their neighbours, have, I believe, been found among unenlightened nations of all religious perſuaſions: and it appears to me, that the *Zoges* are nothing more than ſuch deluded or deluding perſons.

It has already been ſaid, that GODAMA commanded his images and relics to be worſhipped*. The largeſt and moſt celebrated temples are generally in the form of a pyramid, and are ſuppoſed to contain ſome of thoſe relics; ſuch as a tooth, a bone, a hair, or a garment. To theſe temples, as containing the ſacred relic, the prayers of the devout are addreſſed, and their offerings preſented. The pyramids are often of a great ſize, conſtructed of ſolid brick-work plaſtered over, and generally placed on a prodigious elevated terrace. The baſe of the pyramid is frequently ſurrounded by a double row of ſmall ones; and the ſummits of the whole are always crowned with umbrellas, made of a combination of iron bars into a kind of fillagree-work, and adorned with bells. Many of theſe pyramids are from three to five hundred feet high. In the larger temples the umbrella, with at leaſt the upper part of the pyramid, and often the whole, is entirely gilded over: and then the title of *Shué*, or golden, is beſtowed on the edifice. Other temples of nearly a ſimilar ſtructure, but hollow within, contain images of GODAMA, to which the adoration of his diſciples is directed. Both theſe deſcriptions of temples are in common called *Būrā*, which M. LOUBERE writes *Pra*, and ſays that it means reſpectable. It is a phraſe only given either to GOD, and to his images, relics, temples, and prieſts; or to the king, and thoſe governing in his name. An inferior gives it to the meaneſt officers of government; but a ſuperior never gives it to an inferiour, as our king often calls his nobles, my lord, a title ſomewhat analagous. Neither is *Bura* ever applied to a ſtranger; a man

* Page 266 of this Volume.

who has any dependance on a *European*, will call him *Thakiayn*, or *Mayn*, which signify prince, but he will by no means call him *Bura*. Although this be the common name for these temples, yet it is only a term of respect, their proper name in the *Burma* language being *Zedee*.

Although many large temples, which are hollow within, contain such images as are considered of particular sanctity; yet the greater number of the images destined for the adoration of the laity, are placed in chapels, if I may so use the word, which surround the pyramids containing the relics of Godama's person, and which the *Burmas* call *Bura Kiaung*. In these images Godama is always represented as a young man of a placid countenance, with strongly characterised *Burma* features, and generally in the dress of a *Răhān*. His postures are various. The most common is that of sitting cross legged upon a throne, with his left hand resting on his leg, and holding a book, and with his right hand hanging over his knee. In other images he is represented standing, and that in four postures; each differing somewhat in the position of his hands. In others he is represented reclining on a couch, with his head supported on pillows*. The throne on which he is placed, is exactly like the royal throne. Having imagined, that the delineations of the *Hindu* gods floating on the leaves of the lotus, derived their origin from imperfect traditions concerning the deluge, the vigorous fancy of Paulinus discovers a representation of the elegant flowers of that plant in the simple ornaments of these thrones. *Mus. Borg.* pag. 67, compared with tab. 1. fig. 5. The images of the god are of very various materials; clay, copper, silver, and alabaster. Many of them are completely gilded, and many partly gilded, and partly ornamented with paintings of flowers. The size also of these images varies exceedingly: some are not above six inches high, and others are of a most colossal stature. I saw an image in

† See page 260 of this Volume.

in old *Ava*, consisting of one solid block of pure white alabaster, and in a sitting posture: I had no opportunity of measuring its dimensions; but its fingers appeared to me to be about the length and thickness of a large mans' thigh and leg, from whence a conjecture may be made of the immensity of the whole.

ANOTHER object of great veneration among the worshippers of GODAMA are stones of considerable dimensions, carved with various hieroglyphics, and said to represent, or to be the impressions of his feet. The hieroglyphics, on the different stones which I saw, were not alike. In the *Burma* language these stones are called *Kye do bura*, or the respectable royal foot. One of them, on the mountain *Amala Saripadi*, * in the island of *Ceylon*, has given rise to various fables; *Christians*, *Jews*, and *Mahommedans*, uniting to call the mountain ADAM's-peak, and the stone the impressions of ADAM's-foot.

BESIDES these objects of adoration, there are many images common about the religious buildings of the *Burmas*. The principal disciples of GODAMA, especially his two favourites, MOKELA and SARIBOUT, with many other persons, who assisted the god when on earth, are by his followers considered as saints: and many images of these saints, dressed like *Răhāns*, generally accompany those of their master. MOKELA and SARIBOUT occupy the most conspicuous places, the one sitting on the right hand, and the other on the left of GODAMA. The images of the other saints are generally in the posture of adoration. In some chapels there are many images of these saints, without any of the divinity. There is a group of female figures very common at the temples: it represents a princess with her attendants: the princess is on her knees offering up her long hair. It is said, that once, when GODAMA was like to perish in a river, he was saved by this princess,

* STEPHENS's translation of FARIA Y SOUZA, T. 2. p. 4. c. 19, par. 25.

princeſs, who threw him a rope which ſhe made of her hair. The ends of the walls, which project on the different terraces, as you aſcend to the temples, are generally ornamented with figures of GODAMA's cook, a fat, deformed, but droll looking fellow. Beſides human images, there are alſo at the *Burma* temples many repreſentations of elephants, monkies, and other animals, but eſpecially of lions couchant, which often are of a moſt coloſſal ſize. The *Burmas* however, although they conſider theſe diſciples, perſons, and animals, as venerable, on account of the ſervices they performed to GODAMA, have no idea of worſhipping their images; nor, as far as I could learn, of imploring them to uſe in their behalf their intereſt with the divinity: much leſs do they ever addreſs their prayers to the gods of the *Brahmens*, a cuſtom which ſeems to have been adopted by ſome of the *Cingaleſe*, or natives of *Ceylon*. It is however true that the *Burmas* are well acquainted with the gods of the *Brahmens*, and have many legendary books containing an account of their adventures, eſpecially thoſe of RAMA, king of *Baranudee*: but they look upon theſe perſonages merely as heroes, or as remarkable men, only admirable for the wonderful actions they performed. In ſome of their temples, and in the carved ornaments of *Kiaungs*, and of houſes for the reception of ſtrangers, there are repreſentations of the actions of theſe heroes, and of the *Nat*. Among theſe the figure of GANESA is one of the moſt common.

EVERY true worſhipper of GODAMA prays before he goes to ſleep, and before he riſes in the morning, which is generally at dawn of day. The old men, and women of all ages, are more regular in their devotions than the youths, as is the caſe, I believe, in all countries, where the women are not degraded into the rank of brutes. In praying they uſe roſaries, often made of amber beads, and often of various ſeeds, eſpecially of the *Canna indica* LIN. and *Cæſalpinia oleoſperma* ROX. The former plant is peculiarly ſacred

to BOUDDHA, as it is ſuppoſed to have ſprung from his blood, when once on a time he had cut his foot, by ſtriking it againſt a ſtone. I believe they have fixed forms of prayer in the *Pali* language; at leaſt I never could underſtand one word of their prayers, farther than that they contained many repetitions of the different appellations of the divinity; but that might have been owing to the manner in which they were chaunted. The prieſts have no regular daily ſervice like the maſs: but they have certain forms of prayer, which they uſe on the dedication of a temple or *Kiaung*, or on certain feſtivals, on which preſents are offered to them. The women alſo, in all their little diſtreſſes and fears, ſuch as in thunder, or in a ſquall of wind on the water, invoke the *Nat*: and they ſeldom get fruit, but they put it on their heads, turn to the four quarters of the earth, and call on the *Nat*, either wiſhing for their protection, or to ſhow, that with theſe amiable beings they would willingly participate the good things of this life.

BESIDES theſe private devotions, it is cuſtomary to make offerings at the temple. The king daily ſends his offering to a ſmall temple, which is within the palace; and many people make occaſional offerings, eſpecially when they, or any of their family, are in diſtreſs. But the common times for making offerings at the temples are the four phaſes of the moon, eſpecially the days of full and change, which may be called the *Burma* ſabbaths. They reckon *Friday* very unfortunate, and conſequently undertake no buſineſs on that day: but they keep holy no day of the week, which with moſt nations is probably an aſtronomical diviſion of time. While we were at *Amarapura*, I obſerved, that the *Burmas*, on their ſabbaths, faſted from ſun riſe to ſun ſet; and I was told, that very ſtrict people never ſlept in their houſes on the night following theſe holy days: but I have now reaſon to believe, that ſuch ſtrictneſs and faſting are only required for three months of the year, which are therefore a kind of lent.

The offerings made at the temples are very various: boiled rice, fruits, especially the cocoa-nut, flowers natural and artificial, and a variety of curious figures made of paper, gold leaf, and the cuttings of the cocoa-nut kernel, are the most common. It is also very customary for the rich to offer elegant white umbrellas with golden ornaments, large slippers, canes, pillows, and all manner of utensils, gilded, and of the finest materials: these are deposited in the temples or chapels for the use of the divinity. The poor, in place of these costly offerings, content themselves with paper imitations of the same utensils. These gifts are placed before the god or his temples on altars, or on wooden benches: and the eatables become a prey to the crows and dogs. People who have been in peril by water, present models of ships or boats; some of which are formed with considerable neatness. One of the most common ways for a person to express his devotion, is by gilding a patch of a temple, of which many on this account make a very motley appearance. The king's royal munificence is extended to a very great amount, in gilding anew many large temples. We were told, that this part of his expence amounted annually to 20,000 *peiththa* of silver, or nearly 86,805 lb. weight of that valuable metal. The expence of *Eimshè mayn*, or the heir apparent, is also considerable in the same way. When we visited the celebrated temple *Ananda*, the person, who superintended the repairs then carrying on by the prince, told us, that four *peiththa* of pure gold * were prepared for the gilding, which would be bestowed on the inside of that edifice. The roads leading to the principal temples, near populous places, are on holy-days lined with stalls, and little portable shops, where gold leaf, ornamented fruits, flowers natural and artificial, and other similar offerings are sold: so that the devout walk out, buy their offering by the way, and go to the temple where it is to be presented. The women are by far the most numerous

* Value about £830.

numerous devotees, and go in confiderable numbers together, and in their beft drefs. They refort to the galleries and houfes built for the accommodation of thofe who frequent the temple: there they affemble in crowds to adjuft their drefs and offerings: for a while they talk, laugh, and amufe themfelves; then they repair to the temple, fall on their knees, fay their prayers, make their offering, and depart. Bloody facrifices, among the difciples of the mild GODAMA, would be beholden with abhorrence.

THE two principal feftivals, which we faw, were on the occafion of the new year, and on the ending of lent. During the firft, we were at *Pegue*, and were prefent at many of the games, and entertainments, given during its celebration. Only one day's amufement was at the grand temple, *Shue-Modo*, and no religious ceremony, as far as we faw, took place. The moft fingular amufement at this feftival, is the concluding one of throwing water, which to a rude people affords very good fport. For the whole laft day of the feftival, the men are permitted to throw water at the women, and the women at the men: fuch women as are with child being however exempted. All the young people look with joy for this merry day, and it is conducted with the greateft good humour, the one fex not being likely to give offence to the other.

LENT having ended, during the whole month *Sadeen-giut* there are illuminations: every houfe has erected by it a kind of maft, from which are fufpended one or more lamps. In the royal palace, a pyramid of lamps, at leaft 150 feet high, was fupported by a bamboo fcaffolding. From the lodgings of the deputation, this illumination of *Amarapura* made a very fplendid appearance acrofs the lake, by which we were feparated from the city. It is at this time that the nobles from all parts of the empire refort to court to pay their homage to the king. On this occafion we had an opportunity of feeing a model of the hill *Mienmo*, which was erected in the outer court of the

the palace. It was constructed of paper and bamboos, and agreed very well with the account given by the missionary SANGERMANO.

DURING the principal days and nights of these festivals, there is an almost constant succession of wrestling, dancing, music, processions, fireworks, and theatrical entertainments: but of these, it is not at present my intention to give a description.

To finish what I have to say on the religion of GODAMA, it would appear by all the accounts given me, that the *Burmas* received their laws, religion, and government, from the people of *Arakan*, a people speaking the same language with themselves, and from these circumstances often called *Myamma-gye*, or great *Burmas*. This happened about 600 years ago: but the people of *Pegue* and *Arakan*, had received the same gifts from *Ceylon* a considerable time earlier. Previous to this, the *Burma* empire had probably been occupied by tribes in a state of civilization similar to that of the *Karayn*, *Kiayn*, *Lowa*, and other simple nations, who now inhabit the wilder parts of *India* beyond the *Ganges*. Whether or not this knowledge, derived from *Ceylon*, has been of use to these eastern nations, cannot easily be determined. These simple tribes have perhaps more skill in agriculture, and more industry than the *Burmas*; they have art enough to manufacture comfortable, and even handsome cloathing: they are a peaceable people, little inclined to war: among themselves they retain that civil liberty, which most tribes in a similar state enjoy; and it is universally agreed, that their morals are extremely good: but then they have no laws; are ignorant of even the art of reading; and their religious notions are so crude, that although they believe in a future state, yet they are ignorant of its being a state of reward or punishment.

THOSE of the *Chinese*, who have adopted the religion of SHAKA, have probably obtained it from

Hindustan,

Hinduſtan, by the route of *Thibet*. It is undoubtedly the *Chineſe* who have communicated this religion to *Japan*, and to their former dependants in *Tonkin* and *Cochinchina*. Nor is it by any means improbable, that it is through *China* that this worſhip has extended to *Siam*. M. DE LA LOUBERE informs us, that the *Siammeſe* pretend to have got their religion from *Laos*, in which caſe it muſt have come from *China*. Indeed, from its very early introduction into that empire, at the lateſt in the ſixth century of the *Chriſtian* æra, it has had abundance of time to have reached *Siam* as early as we can ſuppoſe that country to have been civilized.

IN conſequence of this univerſal diffuſion of the religion of BOUDDHA over the countries to the eaſt of *Hinduſtan*, it has been imagined, that all the nations inhabiting theſe extenſive regions, and that even the *Chineſe*, are of the *Hindu* race; but can we be juſtified in forming ſuch an opinion, becauſe about 1700 years ago ſome prieſts came from *Hinduſtan* into *China*, and converted to their opinions a multitude of the lower people? As well might we ſay, that the *Romans* in the time of TRAJAN, and of his virtuous and powerful ſucceſſors, were *Jews*, becauſe ſome prieſts had then come from *Jeruſalem*, and had converted, to their opinions, a great number of the *Roman* populace, and ſlaves. The learned and manly Sir W. JONES, among the vaſt variety of objects which engaged his attention, ſeems to have haſtily adopted this opinion. He ſupports the hypotheſis entirely on a paſſage in the inſtitutes of MENU, where, ſays he, " we find the following curious paſſage: " Many families of the military claſs having gradually " abandoned the ordinances of the *Vedas*, and the " company of the *Brahmens*, lived in a ſtate of de- " gradation, as the people of *Pundraca*, the *Chinas*, " and ſome others." He then ſays, " this being di- " rect, poſitive, diſintereſted, and unſuſpected, would " decide the queſtion, if we could be ſure that the

word

word *China* signifies a *Chinese**." Setting aside the difficulties attending the proof of this, of which he has by no means given a compleat solution, I would ask, if it is not to be highly suspected, that the *Brahmens*, like all other bigotted and ignorant sects, wish to exalt themselves by making all nations inferior to their own? I have before observed, that the laws of MENU in use among the *Burmas* are very different from those translated by Sir W. JONES†. The *Burma* code is certainly more than six hundred years old, as it was introduced from *Ceylon* at least so long ago; but it would be very difficult to show, in a country where there are no annals, that the institutes of MENU have existed in their present form for the half of such a period. The *Burma* copy makes no mention of this state of degradation. Were it ascertained, that the GOTAMA mentioned in the *Vedas*‡ was the same with GODAMA of the *Răhāns*, it would be evident that the *Chinese* could not have abandoned the ordinances of the *Vedas*: for at the time of GODAMA, the *Chinese* were a civilized people, with nearly the same laws which they at present enjoy, and the *Vedas* of consequence would be of later date than their institutions. It is however alleged, that there have been more than one GODAMA or BOUDDHA: but whether this opinion be well founded, or whether the GODAMA mentioned in the *Vedas*, be the institutor of the *Burma* religion, or whether he lived earlier or later than that legislator, I do not pretend to ascertain.

A FEW more particulars remain to be mentioned relating to the learning of the *Burmas*.

THE *Burmas* have among them many histories, containing an account of the lives and actions performed by the different families of their princes. These histories

* *Asiatick* Researches, II, 369. † Page 292 of this Volume.

‡ Sir WILLIAM JONES, in the *Asiatick* Researches, IV, 170.

tories are, I am told, very fabulous; every action being attended by omens and prodigies. Still however they may throw ſome light on a part of the world hitherto ſo little known: and I am hopeful ſoon to be able to lay before the learned, a tranſlation of the *Maha-raſa Wayn-gye*, the moſt celebrated hiſtorical work of the *Burmas*. Theſe people have alſo tranſlated hiſtories of the *Chineſe* and *Siammeſe*, and of the kingdoms of *Kathee*, *Ko-ſhanpyee*, *Pagoo*, *Saymmay*, and *Laynzayn*. Of all theſe I ſaw copies, and ſeveral of them I procured for Sir JOHN MURRAY.

ON medicine the *Burmas* have ſeveral books. They divide diſeaſes into ninety-ſix genera, and of theſe ſeveral are ſubdivided into many ſpecies. Their books contain deſcriptions of all the ninety-ſix diſeaſes, with various recipes for their cure. Of the animal kingdom, mummy is a favourite medicine. The *Burmas* are acquainted with the uſe of mercury in the cure of the veneral diſeaſe: but their manner of giving it is neither certain nor ſafe. They make a candle of cinnabar and ſome other materials, and ſetting fire to it, the patient inhales the fumes with his noſtrils. The patient is however rarely able to perſevere long in this courſe, as it always produces a want of appetite, and extreme langour. The greater part however of the *Burma* remedies are taken from the vegetable kingdom, eſpecially of the aromatic kind, nutmegs being one of their moſt favourite medicines. They are well acquainted with the plants of their country, and for a vaſt number have appropriate names. On the whole, however, the practice of their phyſicians is almoſt entirely empirical; and almoſt every one has, or pretends to have, a number of private recipes, on which the ſucceſs of his practice chiefly depends. I was often tempted by wonderful ſtories concerning the efficacy of theſe noſtrums, in order to induce me to purchaſe the ſecret, which ſome of them pretended to have been handed down from their fathers for ſeveral generations. Indeed I found

found a great ſpirit of illiberality among my brethren of trade; nor were they exempt from impoſing on the weakneſs of the ſick, by a pretenſion to ſupernatural powers. In ſpite however of all theſe indirect means of influence, I found them deſervedly not in poſſeſſion of an honourable eſtimation among their countrymen. One curious cuſtom relating to the *Burma* phyſicians may be mentioned. If a young woman is dangerouſly ill, the doctor and her parents frequently enter into an agreement, the doctor undertaking to cure her. If ſhe lives, the doctor takes her as his property; but if ſhe dies, he pays her value to the parents: for in the *Burma* dominions, no parent parts with his daughter, whether to be a wife, or to be a concubine, without a valuable conſideration. I do not know whether the doctor is entitled to ſell the girl again, or if he muſt retain her in his family; but the number of fine young women, which I ſaw in the houſe of a doctor at *Myeda*, makes me think the practice to be very common.

In ſurgery, the ſkill of the *Burmas*, I believe, goes no farther than dreſſing wounds, and ſetting bones. Of late indeed they have introduced from *Arakan* the art of inoculation for the ſmall-pox. This practice has however not become general, as a very great proportion of the people's faces are pitted by that diſeaſe.

On law, the *Burmas* have many treatiſes; both containing the laws of Menu, and copious commentaries on theſe. Whether they ſtill have any copies of the law, as originally imported from *Ceylon*, I know not: but I was told, that the *Damathat-gye*, or code in common uſe, has ſuffered ſeveral alterations, and additions, made by the decrees of various princes.

I heard of no poetry, which the *Burmas* poſſeſs, except ſongs. Of theſe they have a great number on a variety of ſubjects, and are fond of quoting

them on many occasions. Their music, both vocal and instrumental, appeared to me very bad. Some of their musical instruments are, indeed, not so barbarously noisy, as those of the *Hindus* and *Chinese;* but the airs, which the *Burmas* performed on them, I could not at all comprehend. On the contrary, many of the *Hindu* and *Chinese* airs seem to me not at all unpleasant: but I must confess, that I am entirely unskilled and rude in the science of music.

The *Burmas* have dramatic entertainments, used at all festivals, and well described by M. DE LA LOUBERE in his account of *Siam.* The performers indeed, which we saw, were all *Siammese.* Although these entertainments, like the *Italian* opera, consist of music, dancing, and action, with a dialogue in recitative; yet we understood, that no part but the songs was previously composed. The subject is generally taken from some of the legends of their heroes, especially of RAMA; and the several parts songs, and actions, being assigned to the different performers, the recitative part or dialogue is left to each actor's ingenuity. If, from the effects on the audience we might judge of the merit of the performance, it must be very considerable; as some of the performers had the art of keeping the multitude in a roar. I often, however, suspected that the audience were not difficult to please: for I frequently observed the *Myoowun* of *Haynthawade* (the man of high rank whom we most frequently saw), thrown into immoderate laughter by the most childish contrivances. These eastern nations are indeed a lively, merry people; and like the former *French,* dance, laugh, and sing, in the midst of oppression and misfortune.

The original of most of the *Burma* books on law and religion is in the *Pali* or *Pale* language; which undoubtedly is radically the same with the *Sanscrit.* I was assured at *Amarapura* that the *Pali* of *Siam,* and *Pegu,* differed considerably from that of the *Burmas,* and an intelligent native of

Tavay, who had been at *Cingala* or *Candy*, the present capital of *Ceylon*, and at the ruins of *Anuradapura*, the former capital, assured me, that the *Pali* of that island was considerably different from that of *Ava*.

In many inscriptions, and in books of ceremony, such as the *Kammua*, the *Pali* language is written in a square character, somewhat resembling the *Bengal Sanscrit*, and called *Magata*. Of this a specimen may be seen in the description of the *Borgian* museum by PAULINUS*. But in general it is written in a round character nearly resembling the *Burma* letters. Of this kind is the specimen given by the accurate M. DE LA LOUBERE, and which some persons have rashly conceived to be the *Burma*. There is no doubt, however, that all the different characters of *India*, both on the west and on the east of the *Ganges*, have been derived from a common source: and the *Burma* writing of the whole appears to be the most distinct and beautiful.

In their more elegant books, the *Burmas* write on sheets of ivory, on very fine white palmira leaves. The ivory is stained black, and the margins are ornamented with gilding, while the characters are enamelled or gilded. On the palmira leaves the characters are in general of black enamel; and the ends of the leaves, and margins, are painted with flowers in various bright colours. In their more common books, the *Burmas* with an iron style engrave their writing on palmira leaves. A hole, through both ends of each leaf, serves to connect the whole into a volume by means of two strings, which also pass through the two wooden boards, that serve for binding. In the finer binding of these kind of books the boards are lacquered, the edges of the leaves cut smooth and gilded, and the title is written on the upper board, the two cords are *by a knot or jewel* secured at a little distance from the boards, so as to prevent the book from falling to pieces,

* Page 15.

but

but sufficiently distant to admit of the upper leaves being turned back, while the lower ones are read. The more elegant books are in general wrapped up in silk cloth, and bound round by a garter, in which the *Burmas* have the art to weave the title of the book.

As there are but few of the *Burmas* who do not read and write, almost every man carries with him a *parawaik* *, in which he keeps his accounts, copies songs, till he can repeat them from memory, and takes memorandums of any thing curious. It is on these *parawaiks* that the *Zares* or writers in all courts, and public offices, take down the proceedings and orders of the superior officers: from thence copying such parts, as are necessary, into books of a more durable and elegant nature. The *parawaik* is made of one sheet of thick and strong paper blackened over. A good one may be about eight feet long, and eighteen inches wide. It is folded up somewhat like a fan, or thus *a* /\/\/\/\/\ *b* each fold, or page being about six inches, and in length the whole breadth of the sheet. Thence, wherever the book is opened, whichever side is uppermost, no part of it can be rubbed, but the two outer pages, *a. b.* and it only occupies a table one foot in width by eighteen inches long. The *Burmas* write on the *parawaik* with a pencil of steatites. When in haste the *Zares* use many contractions, and write with wonderful quickness. I have seen them keep up with an officer dictating, and not speaking very slow. But when they take pains, the characters written on the *parawaik* are remarkably neat. Indeed this nation, like the *Chinese*, pique themselves much on writing an elegant, and distinct character. When that, which has been written on a *parawaik*, becomes no longer useful, the pages are rubbed over with charcoal, and the leaves of a species of *Dolichos*: they are then clean, as if new, and equally fit for the pencil.

* I do not know, but that this ought to be written *Paruœk*.

Every convent has a collection of books: several of which are pretty considerable. The most common copiers are indeed the *Rahans*, who, prepare books both for their convents, and for presents to their lay benefactors. These books are kept in chests, much ornamented with gilding, and bits of looking-glass, fastened on with lacquer, in the shape of flowers. At *Amarapura* we were shewn a part of the royal library. This is a brick building, surrounded by enclosed courts, and temples, which occupy a delightful situation, in the N. W. angle of the city. Near it is a small, but most elegant *Kiaung*. To this, at times, the monarch retires; and we were shewn the gilded couch on which he reposes, while the ZARADO reads to him, and instructs him in the duties of religion. The library itself is neither a convenient nor handsome building. The gallery, into which we entered, contained about a hundred chests, gilded on the sides, and lacquered above, with the general title of their contents written in golden letters. The chests were large, and if full, must have contained many thosand volumes. As we saw only a part, I presume that the king's collection is very extensive. He is, indeed, said to be a very intelligent, and learned prince. He was very desirous of obtaining some *Brahmen* more learned, than those he had, to instruct him in astronomy: and he had caused the institutes of MENU to be translated from the *English* of Sir WILLIAM JONES. He must therefore have heard of what is pursued among the *Europeans*, in at least oriental literature: and it is to be hoped, that some more useful books may attract his notice: books which might tend to improve the people, and give them more enlightened notions of politics, of the arts, and of science. Hitherto, I suspect, the laws, or religion, of the *Burmas*, have contributed little to the happiness of the people; but fortunately they have not, like those of the *Brahmens*, placed any insurmountable obstacles in the way of national improvement.

IX.

NARRATIVE

OF

A JOURNEY TO SIRINAGUR.

By CAPTAIN THOMAS HARDWICKE.

HAVING sometime ago visited the mountainous country of *Sirinagur*; I hope a succint detail of some of the most remarkable circumstances, which occurred in that journey, will not be unacceptable to the *Asiatick* Society.

On the 3d of *March*, 1796, I commenced the journey, from *Futtehghur*, in company with Mr. HUNTER; and we arrived, on the 19th of the same month, at *Anoopsheher*: our route was circuitous, for the purpose of visiting the several indigo plantations, established by *European* gentlemen, in this part of *Dooab*. Here were conspicuously displayed, the effects of skill, of industry, and of a spirit of commercial enterprize, in beautifying and enriching a country, which in other parts exhibiting only waste and forest, supplies, indeed, matter to gratify the curiosity of a naturalist, but suggests to the philanthropic mind the most gloomy reflections.

At *Anoopsheher* I recruited the necessary supplies for the prosecution of my journey, and on the 23d, continued my march alone; for my fellow-traveller was under the necessity of returning, from this place, to attend the residency with DOWLUT ROW SINDEAH, on a visit to the *Marhatta* camp.

On the 30th of *March*, I arrived at *Nejeebabad*: the town is about six furlongs in length; with some regular streets, broad, and enclosed by barriers at different

distances,

distances, forming distinct bazars. In the neigbourhood, are the remains of many considerable buildings. Near the south-west end of the town is a large garden, called *Sultan Bagh*; containing in the center a spacious square building, erected by one of the sons of NEJEEB-UD-DOWLAH.

On the north-east side of this garden, and at the distance of 300 yards, is another, in which lies buried NEJEEB-UD-DOWLAH: his grave is without ornament, raised on a terrace, a few feet from the ground, in an area of about eighty yards, surrounded by a square building, formed into apartments and offices; for the accommodation of the servants, appointed to perform the usual ceremonies, for the benefit of departed souls.

A considerable traffic is carried on here, in wood, bamboos, iron, copper, and tincal, brought from the hills. It is also the center of an extensive trade from *Lahore*, *Cabul*, and *Cashmir*, to the east and south-east part of *Hindustan*.

At the distance of ten miles and six and a half furlongs, from *Nejeebabad*, on the road to *Hurdwar*, is *Subbul-gurh*, a very extensive line of fortification, enclosing the town; both of which exhibit little more than naked walls falling to decay. Much of the ground, within the fort, is in cultivation. In the south-east curtain, or face of the fort, is a lofty brick-built gateway. The high road leads close past the north-east bastion, and continues along the north face, the whole length, within thirty or forty yards of the ditch.

On the 1st of *April*, I arrived at *Unjennee Ghat*, about three miles below *Hurdwar*, on the eastern side of the river. The town of *Hurdwar* occupies a very small spot, consisting of a few buildings of brick, the

property

property of eminent *Goosseyns*. It is situated on the point of land at the base of the hills, on the western side of the river.

The stream here divides itself into three channels, the principal of which is on the eastern side, and running along a pleasant bank, called *Chandee Ghat*, meets the base of the hill, which gives this name to the *Ghat* below. The deepest channel at present is in some places about fifteen feet, a depth not long continued; and near the termination of each reach of the river, the stream breaks, with rapidity, over beds of large loose stones, sometimes with no more water than sufficient to give passage to large unloaded boats. The points of the islands, several of which are formed in the bed of the river, are principally of loose pebbles and sand; but, the rest of the land, between the different channels is covered with the *Mimosa Catechu*.

The ascent of the hill, called *Chandee*, commences at a little distance from *Unjennee*, from which, to the top of the hill, I consider about two miles and a quarter. Some part of this distance, however, is a long and elevated level bank. The ascent to the high part of the hill, is very steep; the path narrow, and requiring much attention and exertion, to prevent accidents in stepping, from the looseness of the stones and earth.

On the top of this hill is a *Tersool* or trident, about fourteen feet high, of stone, supported by a small square base of mason-work; the base of the forks is ornamented, on the east side, with figures of the sun and moon, between which, upon the shaft, is the figure of GANESA.

Near the base of the shaft, are the figures of KAALKA DEVI, and HANUMAN, the former on the east, the latter west. The space on the summit of this hill, is not twice larger than the square of the pe-

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destal of the trident: from this, a narrow ridge leads to another hill, something higher: and in this manner the hills here are mostly connected; the highest being generally of a conical form. They are very thinly clad with vegetable productions: the trees are few, and small; and the grass, at this season of the year, parched up. In some parts of the hills, however, where the aspect is more northerly, the grass is more abundant, finer, and seemingly much liked by the cattle.

On the top of *Chandnee*, a *Bramen* is stationed to receive contributions from visitors during the continuance of the *Mela:* the produce, he says, upon an average, is for that time, about ten rupees per day.

This *Mela*, or fair, is an annual assemblage of *Hindus*, to bathe, for a certain number of days, in the waters of the *Ganges*, at this consecrated spot. The period of ablution is that of the Sun's entering Aries; which, according to the *Hindu* computation, being reckoned from a fixed point, now happens about twenty days later than the vernal equinox. It accordingly fell on the evening of the 8th of *April*. But every twelfth year, when Jupiter is in Aquarius, at the time of the Sun's entering Aries, the concourse of people is greatly augmented. The present is one of those periods, and the multitude collected here, on this occasion, may, I think, with moderation, be computed at two and a half millions of souls*. Although the performance of a religious duty is their primary object, yet, many avail them-

* This estimation may appear enormous; and it therefore becomes necessary to give some account of the grounds on which it was formed. Small sums are paid by all, at the different watering places; and the collectors at each of these, in rendering their accounts to the *Mehunts*, who regulate the police, are obliged to form as exact a register, as a place of so much bustle will admit of. From the principal of these offices, the number of the multitude is found out, probably within a few thousands. The *Goosseyn*, on whose information the calculation was formed, had access to these records; and the result, as delivered above, was thought more likely to be under, than over the truth.

selves

selves of the occasion, to transact business, and carry on an extensive annual commerce. In this concourse of nations, it is a matter of no small amusement to a curious observer, to trace the dress, features, manners, &c. which characterize the people of the different countries of *Cabal*, *Cashmir*, *Lahore*, *Butaan*, *Sirinagur*, *Cummow*, and the plains of *Hindustan*. From some of these very distant countries, whole families, men, women, and children, undertake the journey, some travelling on foot, some on horseback, and many, particularly women and children, in long heavy carts, railed, and covered with sloping matted roofs, to defend them against the sun and wet weather: and during the continuance of the fair, these serve also as habitations.

Among the natives of countries so distant from all intercourse with people of our colour, it is natural to suppose that the faces, dress, and equipage of the gentlemen who were then at *Hurdwar*, were looked upon by many as objects of great curiosity: indeed it exceeded all my ideas before on the subject, and as often as we passed through the crowd in our palanquins, we were followed by numbers, of both women and men, eager to keep pace, and admiring, with evident astonishment, every thing which met their eyes. Elderly women, in particular, saláamed with the greatest reverence; many shewed an eagerness to touch some part of our dress; which being permitted, they generally retired with a salaam, and apparently much satisfied.

At our tents, parties succeeded parties throughout the day, where they would take their stand for hours together, silently surveying every thing they saw.

Sometimes more inquisitive visitors approached even to the doors of the tent, and finding they were not repelled, though venturing within, they generally retired, with additional gratification; and fre-

quently

quently returned, as introductors to new visitors, whose expectations they had raised, by the relation of what themselves had seen.

The most troublesome guests were the *Goosseyns*, who being the first here in point of numbers and power, thought it warrantable to take more freedoms than others did: and it was no easy matter to be, at any time, free from their company: it was, however, politically prudent, to tolerate them; for, by being allowed to take possession of every spot round the tents, even within the ropes, they might be considered as a kind of safe-guard, against visitors of worse descriptions; in fact, they made a shew of being our protectors.

In the early part of the *Mela*, or fair, this sect of *Fakeers* erected the standard of superiority, and proclaimed themselves regulators of the police.

Apprehending opposition, in assuming this authority, they published an edict, prohibiting all other tribes from entering the place with their swords, or arms of any other description. This was ill received at first, and for some days it was expected force must have decided the matter; however, the *Byraagees*, who were the next powerful sect, gave up the point, and the rest followed their example. Thus the *Goosseyns* paraded with their swords and shields, while every other tribe carried only bamboos through the fair.

The ruling power was consequently held by the priests of the *Goosseyns*, distinguished by the appellation of *Mehunts*, and during the continuance of the *Mela*, the police was under their authority, and all duties levied and collected by them. For *Hurdwar*, though immediately connected with the *Mahratta*

ratta government, and, at all other seasons, under the rule and controul of that state, is, on these occasions, usurped, by that party of the *Fakeers*, who prove themselves most powerful; and though the collections made upon pilgrims, cattle, and all species of merchandize, amount to a very considerable sum; yet no part is remitted to the treasury of the *Mahratta* state.

These *Mehunts* meet in council daily: hear and decide upon all complaints brought before them, either against individuals, or of a nature tending to disturb the public tranquillity, and the well management of this immense multitude.

As one of these assemblies was on the high road near our tents, we had frequent opportunities of noticing their meetings; and one of our sepoys, having occasion to appear before it, in a cause of some consequence, it gave us an opportunity of learning something of the nature of their proceeding.

The sepoy, it seems, on leaving the station, where his battalion was doing duty, was entrusted, by one of the native officers, with fifty rupees, and a commission to purchase a camel. With the intention of executing this trust, he mixed with a crowd, where some camels were exposed for sale; and while endeavouring to cheapen one to the limits of his purse; shewing the money, and tempting the camel merchant to accept, for his beast, the fifty rupees, he drew the attention of a party of *Marwar* men, who were meditating a plan to get it from him. Five or six of those men, separating from the crowd, got round him, said, they (or one of them) had lost his money, to the amount of fifty rupees; that he, the sepoy, was the man who had it; and, with much clamour and force, they got the money from him. Fortunately, the sepoy's comrades were near; he ran towards them and communicated the alarm, and got

assistance,

assistance, before the fellows had time to make off, or secrete the money; they, however, assumed a great deal of effrontery, and demanded that the matter should be submitted to the decision of the *Mehunts:* before this tribunal the cause was consequently brought, and an accusation laid against the sepoy, by these men of *Marwar:* the money was produced, and lodged in court, and the cause on both sides, heard with deliberation. Unlucky for the *Marwarees,* they had neither opportunity to examine or change the money; and knew not what species of coin made up this sum: which circumstance led to their conviction: for being enjoined by the *Mehunts,* to describe the money they had lost, they named coin very different from what the purse contained: but when the sepoy was called upon to answer the same question, he specified the money exactly. The judges immediately gave a decision, in favour of the sepoy, and restored him his money: the *Marwars* were fined each in the sum of five rupees, and sentenced to receive each fifty stripes, upon their bare backs with the *Korah.*

The *Goosseyns* maintained an uncontested authority, till the arrival of about 12 or 14,000 *Seek* horsemen, with their families, &c. who encamped on the plains about *Jualapore.* Their errand here was avowed to be bathing; and soon after their arrival they sent Oodassee, their principal priest or *Gooroo,* to make choice of a situation on the river side, where he erected the distinguishing flag of their sect, for the guidance and direction of its followers, to the spot. It appeared, however, that no compliments or intimation of their intentions, had been made to the ruling power; and the *Goosseyns,* not willing to admit of any infringement of their authority, pulled down the flag, and drove out of the place those who accompanied it. Some slight resistance was shewn by the *Seeks,* in support of their priest, and the dignity of their flag, but was repelled with much violence, and the

Goosseyns,

Goosseyns, not content with driving them away, abused and plundered the whole party, to a considerable amount.

The old priest OODASSEE, on his return to the *Seek* camp, complained to Rajah SAHEB SING, their chief, in the name of the body collective, of the insult and violence they had met with from the *Goosseyns*.

A consultation was immediately held by the three chiefs of the *Seek* forces, viz. Rajah SAHEB SING of *Puteealah*, and ROY SING and SHERE SING of *Booreah*, who silenced the complainants by promising to demand redress and restitution for what they had been plundered of.

A VAKEEL was immediately dispatched, with a representation, from the *Seeks* to the *Mehunts*, or priests of the *Goosseyns*, pointing out the right, they conceived they possessed, in common with all other nations, to have access to the river; and complaining of the wanton insults they had met with, from their tribes, when in the peaceable execution of their duty: however, as they had no remedy, to make amends for some part of the ill treatment they met with, yet they demanded an immediate retribution of all they had been plundered of, and free access to the river or place of bathing.

The *Mehunts* heard their complaints, expressed concern at what had happened, and promised their assistance, in obtaining the redress sought for: and the matter, for the present, rested here; the *Goosseyns* giving back, to the *Seeks*, all the plunder they had taken, and admitting of their free ingress and egress to the river.

All was pretty quiet, during the few remaining days

days of bathing; but on the morning of the 10th of *April*, (which day concluded the *Mela*) a scene of much confusion and bloodshed ensued. About eight o'clock on that morning, the *Seeks* (having previously deposited their women, children, and property, in a village, at some distance from *Hurdwar)* assembled in force, and proceeded to the different watering-places, where they attacked, with swords, spears, and fire-arms, every tribe of *Fakeers* that came in their way. These people made some resistance, but being all on foot, and few, if any, having fire-arms, the contest was unequal: and the *Seeks*, who were all mounted, drove the poor *Sannyassees*, *Byraagees*, *Goosseyns*, *Naagees*, &c. before them, with irresistible fury. Having discharged their pieces within a few paces, they rushed upon those unfortunate pilgrims with their swords, and having slaughtered a great number, pursued the remainder, until, by flight to the hills, or by swimming the river, they escaped the revenge of their pursuers.

The confusion, spread among other descriptions of people, was inconceivable; and every one, thinking himself equally an object of their resentment, sought every means of safety that offered: many took to the river, and in the attempt to swim across, several were drowned: of those who endeavoured to escape to the heights, numbers were plundered, but none who had not the habit of a *Fakeer* was in the least hurt: many parties of straggling horsemen now ranged the island, between *Hurdwar* and *Unjimnee gaut*; plundering the people to the very water's-edge, immediately opposite to us; fortunately for thousands, who crowded to this *gaut*, the greatest part of one of the vizier's battalions, with two six-pounders were stationed here; two companies of which, with an addition of a few of our own sepoys, and a native officer, whom Captain MURRAY very judiciously sent across the river, kept the approach of the horse in check. Finding they could not attack the crowd on the water's-edge, without receiving a smart

fire

fire from the sepoys, as well as exposing themselves to the fire of their guns, they drew off, and by about three o'clock in the afternoon, all was again quiet.

At this time, the cause of such an attack, or the future intentions of this body of *Seeks*, was all a mystery to us; and popular report favoured the conjecture, that they intended to profit from the present occasion, and by crossing the river, at a few miles lower down, return, and plunder the myriads of travellers who crowded the roads through *Rohilcund.* However, the next morning discovered they had no such intentions; as, from the adjacent heights, we saw them take their departure, in three divisions, bending their march in a westerly course, or directly from us. The number which had crowded to the river side, opposite to our tents, was too great to be ferried over in the course of the night, and consequently remained in that situation: fearful of the approach of day, and in dreadful alarm from the expectation of another visit from the *Seeks*, but by eight o'clock, their minds were more at ease, and they offered up their prayers for the *English* gentlemen, whose presence, they universally believed, had been the means of dispersing the enemy.

From the various information we had now collected, we concluded this hostile conduct of the *Seeks* was purely in revenge against the tribes of *Fakeers*: many of the wounded came to our camp to solicit chirurgical assistance and they all seemed very sensible, that they only were the objects of the enemy's fury.

Accounts agree that the *Fakeers* lost about five hundred men killed, among whom was one of their *Mehunts*, or priests named MAUNPOOREE; and they had many wounded: of the *Seeks* about twenty were killed, but the number of wounded not known.

The

The mountains in the neighbourhood of *Hurdwar* afford, but little amusement for the mineralogist; nor is a fossil to be found in them, impregnated with any other metal than iron.

In some situations, where the fall of water has exposed their surface, for one or two hundred feet, nothing more is exhibited than an argillaceous marl, varying in hardness and colour, according to the metallic particles they contain: sometimes this variety is shewn very distinctly, *stratum super stratum*, the lowest consisting rather of siliceous particles, having loose quartzose sand, with very little earthy mixture; and crumbling to pieces with the least application of force; the next a fine smooth marl, of a dull cineritious grey, compact, and soapy to the touch: it is quickly diffusible in water, and does not effervesce in acids. The next is of a pale liver-coloured brown, possessing properties like those of the preceding one, but somewhat more indurated, and most likely containing more iron: the fourth, or superior stratum is still browner than the last; and exhibits, in its fracture, small shining micaceous particles. In other places, the whole side of a mountain consists of siliceous sand, mixed with mica and some calcareous earth; the whole very slightly connected, laminated, and tumbling in large quantities into the water-courses below; sometimes found sufficiently indurated to bear the violence of the fall. From the place called *Neel Koond*, a winding nullah, of about a mile in length, falls into the *Ganges* a little above *Unjinnee*: in the bed of it, a greater variety of stones is found than might be expected from the nature of the hills, in which the source of it lies; thus granite, and opaque quartz, of different colours, are found in pretty large rounded masses: yet no such stones, as far as observation can trace, form any part of the mountains, in this neighbourhood.

The high ground between the bank of the *Ganges* and

and the mountains, also contains many of these stones, in a loose unconnected state; some lying very deep in the earth, as may be seen on the side of the bank exposed to the river: these bear a perfect resemblance to those stones in the beds of the nullah, and *Ganges*, which owe their form to the attrition of rolling currents for ages: but the elevated situation in which these are bedded, leaves no room for supposition, when, if ever, they were subject to such action.

The riches of the vegetable kingdom, however, made ample amends for the want of variety in the mineral productions. As an enumeration of the plants I met with, during my stay at this place, would interrupt the thread of my narrative, I have subjoined them in the form of an appendix, together with all the others found in the course of my tour; adding such remarks on their history, or œconomical uses, as I judged might be interesting. I have only to observe, that the season just now is not very favourable for finding herbaceous plants in flower; the greatest abundance of this description is brought forward by the periodical rains, and a visit in the months of *September* and *October*, would, no doubt, be attended with a very successful investigation. On the other hand, to explore the loftier products of the extensive forests, with the deliberation the research requires, it should be begun in *January*, and continued to the end of *April*.

As a necessary measure, previous to my proceeding on my intended journey to *Sirinagur*, I dispatched a servant, with a letter, to the rajah of that place; signifying my intentions of visiting his capital, and forwarding, at the same time, a letter I had the honour to receive, from the vizier, ASOPH-UL-DOWLAH, through the kind influence of the resident, Mr. CHERRY. My servant returned on the day I was quitting *Hurdwar*, (12th *April*) with the rajah's acknowledgement of my letter, and a perwannah or pass

 through

through his dominions written in the ancient *Hindu* character.

On the 12th of *April*, I took my departure from *Hurdwar*, or *Unjinneeghat*; and on the 13th, making two marches of it, arrived at *Nejeebabad*. This was certainly a retrogade motion, but two or three reasons operated, to induce me to change the route I originally intended to take; first, *Hurdwar* was a place of less security for the cattle and baggage I must leave behind, and the difficulty of feeding them greater, than in a place where established bazars produced abundance of grain.

Secondly, some little conveniences necessary to my manner of travelling, I could not get made up here; and thirdly, the road direct from *Hurdwar* to *Sirinagur*, was more difficult of access and worse supplied with provisions and water, than the one recommended from *Nejeebabad*; I therefore decided in favour of the latter.

Among other preparations while here, a substitute for a palankeen was requisite, and I made up what is called a *Chempaan*, which is nothing more than a litter, of about five feet in length and three in breadth, supported between two bamboos, or poles, fixed to the sides a little above the bottom, and carried in the manner of what is called in *Bengal* a *Tanjaan*, by a short yoke fixed between the poles near the ends, and parallel to them.

On the 20th, I commenced my march from *Nejeebabad*, and encamped at the petty village of *Coadwara*, at the distance of eighteen miles. This village is situated at the distance of three furlongs, within the barrier of this *ghat*, where is the first ascent of the hills through a rugged road. The barrier is a large double gate of plank, flanked on the left by a precipice, and on the right by a wall of loose stones, connected with the neighbouring ridge of hills. This point of land, including the village, is nearly encircled by the *Koa-nullah*, a shallow, but clear and rapid stream; but being surrounded on the

the north, east, and south, by higher mountains, the situation, must be, at some seasons, intolerably hot, and probably unhealthy.

These ranges of hills rise, with a moderate, though unequal slope, from the plains below, and are skirted by deep forests, extending from *Hurdwar* through *Rohilcund*, *Oude*, and the countries to the eastward, and produced many kinds of valuable timber, and an abundant store of plants, never yet, perhaps, brought under the systematical examination of the botanist. They also abound with game of many descriptions. Elephants are found here, and sometimes range beyond the skirts of the woods, to the great injury of whatever cultivation they meet with: but their depredations are particularly directed to sugar plantations.

They are considered inferior, in size and value, to the elephants brought from the eastern countries; and are seldom caught, but for the purpose of taking their teeth.

The soil of these forests varies, from a black fat earth, where the trees or shrubs which it nourishes, acquire a large size; to a firm reddish clay, and mixtures of gravel and loose stones of various descriptions.

On the 21st, I marched to *Amsore*, a small village on a little cultivated spot. The first part of the road lay in the bed of the *Koa-nullah*, and the whole of it was so rugged, that although the distance is only computed four coss, and I judge it not to exceed seven miles, I employed three hours and a half in walking it, and my baggage did not arrive till six hours after I set off. The general direction of the road is about N. E. by. E.

On the 22d, a walk of two hours and forty minutes

carried

carried me to *Ghinouly*, the distance of which from *Amsore*, I compute to be eight miles; the road being much less obstructed than yesterday. Towards the beginning of this day's march, the road passes between two stupendous rocks. The stones, in this part of the nullah, lying in very large masses, the stream passing between with very great rapidity, and the only path across being on spars laid from rock to rock, the passenger is exposed to imminent danger. Farther on, I met with one of the small water-mills, called *Punchuckee*, which was now working. The construction is very simple: the stones which are little larger than those turned by the hand, and called *chuckies*, are worked by means of an horizontal wheel; the spokes of which are cut like the valves of a venetian window, and set obliquely into the case of a perpendicular shaft; and, upon these valves, a stream of water, from a narrow spout, at about four feet elevation, falls, with force enough, to give brisk motion to the machine. The water is brought to it, by banking up the stream of the nullah, till it acquires the necessary elevation. The hopper is a conical basket, suspended with the narrow end of the cone over the hole in the stones; and being kept in a gentle motion, it supplies them constantly and regularly. In this manner, two men relieving each other, will grind from four to six maunds of grain in twenty-four hours.

The village at *Ghinouly* consists of three huts. Seldom more than five or six together are to be met with; and it is a large village that has so many as ten.

The hills in this situation, are not so close as those in the road behind me; the ground between, on each side the nullah, elevated and very pleasant; and the cultivation carried to the very summits of those mountains. The sides of all, look greener than those hitherto seen, but I was not yet sensible of

any

any moderation in the heat of the day. The thermometer was up to ninety-five, and never lower than seventy-two within my tent.

On the 23d, after a walk of three hours and ten minutes, I arrived at *Dosah*, an inconsiderable village on the banks of the nullah, along which lay the greatest part of the road, from last encampment. This day's journey exhibited a considerable variety of scenery, being now a rugged path, between abrupt impending rocks, and now, little open spaces, surrounded with gently sloping hills, the sides of which are diversified with clumps of fir, oak, and saul, and with cultivated ground. In one of these latter situations, the water is conducted from one side of the nullah, to the fields on the other by an ingenious, though simple contrivance. A trough, formed by hollowing the body of a large fir-tree, is placed across, where the over-hanging rocks favour the communication, and conducts a stream, sufficient for the purpose of irrigation.

The *Koa-nullah* has its source about three miles above *Dosah* to the north, and its first small branch rises in a spring at *Dewara-Kaal*, and receives increase from several small rills, issuing from the surrounding hills, between *Dewara-Kaal*, and this place.

The bed of the nullah here contains great quantities of *Mica*, of various tints, according to its impregnation with iron or other metallic ores: the mountains exhibit it in very considerable masses; and, in many places, it falls crumbling down their sides, into the water-courses below. Thence it is carried away, by the currents, shining at the bottom, with a lustre little less brilliant than silver. None of it, however, is of so pure a transparency as to serve the purposes to which this substance is usually applied.

The thermometer, to-day, was at the highest ninety, and at four in the morning down to sixty-five; the wind variable and threatening change of weather.

The sportsman may here find ample source of amusement. Black partridge, hares, and quail, are found in plenty, without much labour; and the eager pursuer, who does not consider the ascending of heights, and creeping into jungles, material obstacles to his amusement, will find two species of fowls, and the deer called *parah*, by the natives (*Cervus Porcinus*, L.).

The fish of the nullah are small, but make a very tasted fry, and are an acceptable variety to the scanty supply of animal food procurable: they are mostly of the genus *Cyprinus*, four species of which I particularly remarked. The manner of taking fish in these shallow rapid nullahs may not be unworthy of notice. One method is by rod and line; about eight or ten yards of one end of the line is filled with nooses, or snares, formed of horse hair from one to three or four hairs strong, according to the size of the fish expected to be caught; and at intervals of about fifteen inches, oblong pieces of iron are fixed, to prevent its being carried away by the force of the current: the other end of the line, perhaps ten or twelve yards, is passed through a bow, at the end of a short rod, and kept in the hand below, and both are managed in the same manner as a trowling rod and line; thus prepared, the fisherman casts the end with the snare across the stream, where he lets it remain about half a minute, during which time, he pokes a light forked stick, carried in the right hand, into holes about the stones, thus driving the fish up the stream, against the snares of the line, and on taking it up, generally has secured from one to four fish. By these simple means, he seldom fails, in about half an hour, to get a tolerable fry.

Another

Another method, practised by the natives, is to stupify or kill them, with vegetable substances: for this purpose they make choice of a pool formed by the current, and turning the stream, by heaping up stones, stop up the supply of fresh water into it, in the same manner, closing every outlet, then bruising the fruit of a tree common here, they cast a quantity into the pool, and in about half an hour, its deleterious effect seldom fails to shew itself: the fish, unable to preserve their equilibrium, tumble about, rise to the surface of the water, and are easily taken with the hands.

On the 24th, in three hours thirty-five minutes, I reached *Belkate*. The scenery, on this day's march, was more beautifully diversified, than in any preceding one. The forests of oak, fir, and boorans*, are here more extensive, and the trees of greater magnitude than any I have yet seen. Unfortunately, neither the traveller's mind, nor his eye, can be enough disengaged, to admire, in security, the sublimity of this prospect: for after the ascent of a pretty high ridge of mountains, the road is continued along their side; winding, and so narrow, that without constant attention, you are in danger of being precipitated into an alarming depth of valley on the right.

The spot, on which I encamped, is a narrow valley, separating the villages of *Bedeyl* and *Belkate*, which are nearly opposite to each other; the river *Nayaar* running between, with a stream beautifully transparent, in the direction of W. N. W.

The principal source which forms this river, if I am to trust the authority of the natives, lies at a place called *Doobree*, about forty eight coss, or four days journey east (to a man on foot, without burthen;) and issues, in a considerable stream, from the root of a tree called *Beh-kul*. It falls into the *Ganges*, about

* See the catalogue annexed to this paper.

nine miles below *Dew-praag*, with which I find the natives have some communication in the rainy season; and through this channel carry on a small traffic in iron, grain, &c. in canoes formed from the trunk of large *Semel* trees.

I crossed the river, in knee-deep water, and pitched my tent under a large mango tree, where two or three trees more afford ample shade for servants of all descriptions.

The mountains in the neighbourhood of this valley lie in lamellated strata of various coloured fissile stones or slate, from a dull clay colour, to ash, bluish black, light brown, and ferruginous brown; in some places a vein of white quartz runs through, in an irregular direction.

The houses here are covered, with a kind, much resembling the common writing slate.

On the 25th I walked, in two hours and fifteen minutes, to *Nataana*, a village of five or six houses upon the brow of a sloping hill. It looks into an excessive deep valley, formed, by the surrounding hills, into a narrow bottom, resembling an inverted cone, and cultivated in ridges, down their sides, to the very base. The road from *Belkate* ascends gradually, and the elevation here is such as considerably to reduce the temperature of the air. From an accident to my thermometer, I could only estimate this by my sensations, which did not indicate a higher degree than eighty-five at noon. The natives say, it continues thus cool, all the month of *May*, and they seldom, at any time, experience excessive heat.

I pitched my tent, at the distance of three quarters of a mile from the village, near a little stream of wa-

ter, which supplies the wants of the inhabitants. It issues from the mouth of a bull, rudely hewn out of the rock, and fall into a reservoir below. The stream is not larger than a musquet barrel, but the supply is always constant and clean. The wheat, in some parts, is now ripe, and the women employed in reaping it.

The mountains, for some miles round *Nataanee*, have a naked appearance. No trees to be seen, but upon distant hills; some bushes grow along the ridges, formed for banking up the earth; and the standing corn is almost the only vegetation besides, to be seen. The soil is scanty, and very stony; and the crops thin, except those near the village, which are improved by the little manure the inhabitants give the land; they seem too indolent, however, to extend this improvement beyond one or two ridges: indeed, as the carriage must be upon their own backs, the labour would be great. Their only cattle are bullocks, but those, as far as I could observe, are not used for the carriage of burthens. They draw the plough, trample out the corn: and the milk of the cows forms a principal part of the people's sustenance. Ever since I ascended the ghauts, I observed the same features mark the breed of oxen in those hills; they are low, not exceeding the height of the small *Bengal* cows; their bodies short and thick, legs very short; but slight appearance of that fleshy protuberance, common to the male of these animals in *Hindustan*; their horns are short, tapering, wide at their base, and gradually approximating towards their points, with a slight curve inwards: their heads short, and thick: the prevailing colour is from red to dark brown; with black noses, and black tips to their tails.

Curiosity led me into the village, but what chiefly excited my attention, was the appearance of uncleanliness, indolence, and poverty; the only proof of their attention to some kind of comfort, is in the struc-

ture

ture of their houses, which are of stone, laid in common mortar, with a sloping roof, covered with fine slate, raised to a second floor, which is occupied by the family, while the lower, or ground one, gives cover to their cattle in bad weather.

Their cows are the only animals to be met with among them, they have neither dog, cat, goat, sheep, nor common fowls.

On the 26th, I marched to *Adwaanee*, along a range of mountains, covered with forest trees, of various species. The distance from *Nataana*, by computation of the natives, is six coss. I was three hours and five minutes in walking it, and considering the nature of the road, and time lost by the stopping, I conclude the true distance to be about eight and a half miles. The distance would be considerably less, on a line drawn from *Nataana* to this place, which regains the former direction, and places *Adwaanee* about N. E. from the point marched from.

This situation is a narrow, elevated ridge, exposed to the influence of a bleak and chilling wind. The only remnant of human industry is the scattered ruin of a house for the accommodation of travellers.

On the 27th, at half an hour past four in the morning, I proceeded on my journey. The road continuing with an ascent, for about half an hour, brought me to the summit of a ridge, from whence is seen the lofty chain of snowy mountains, in a very extended line, from east to west. Those mountains are seen from some parts of *Rohilcund*; but so remote and indistinct, as to give no idea of the magnificent scenery that now opened to my view; the grandeur of which was every moment encreasing by the more powerful illumination of the rising sun.

One

One of the most conspicuous summits of this chain is distinguished by the name of *Hem*, near the base of which is the famous place of *Hindu* worship called *Buddee-nauth*. It is marked to travellers by the greater breadth of its top; and rising in four or five rugged, but rather conical points. Its bearing from where I made these notes was N. N. E.

The road, from this ridge, gradually descending, I arrived, at thirteen minutes past seven, at *Teyka-ca Maanda*. Here is only one indifferent building, for the accommodation of travellers, and a few scattered hamlets appear on the sides of distant mountains.

The air proved here as cold as at *Adwaanee*, and having no shelter from trees, was the more smartly felt. The rocks are of a course dull granite in some places; and in others, extensive beds of various kinds of schistus appear; most of them lying in a vertical position and near the upper surface, dividing into fine laminæ, exhibiting colours, inclining to purple, yellow and green. That most exposed to the air crumbles to dust under its influence.

On the 28th, I walked, in two hours fifty-five minutes, to *Chet-kote*, situated in a confined valley, where the heat was excessive. In the early part of the march, over a gentle ascent, the snowy mountains, which had been concealed by a hill in front, suddenly emerging, presented a spectacle truly magnificent.

29th *April*, 1796, *Sirinagur*.

I left *Chet-kote* this morning at twenty-five minutes past four, the descent still continuing; and twenty minutes walk brought me to a pretty large nullah which falls into the *Aluknundra*, a short distance below *Sirinagur*. By banking up the stream, it is raised to an height sufficient to work two or

three

three of those little mills called *Pun Chukees*, which from their vicinity to the metropolis, are kept in constant employ. This nullah is called *Koonda Guad*. The road continued along it for twenty-two minutes through little fields of unripe corn: leaving the nullah, I ascended for thirteen minutes, which brought me to the summit of a ridge, from whence I had a distinct view of the town and valley of *Sirinagur*; and the winding course of the *Aluknundra* river through it, running in a direction from east to west along the north side of the town. On the top of this hill, a *Fakeer* has stationed himself, to contribute to the relief of the thirsty traveller, and deals out the waters of the holy *Ganges* for a pecuniary compensation.

About fifteen minutes before six o'clock, I reached the valley, and the banks of the river five minutes after. I was here met by a person of the rajah's household, who was sent to congratulate me, on having surmounted the obstacles of a difficult journey; and to know what he could do for me, or what contribute to my immediate accommodation; offering, if a house would be acceptable, to clear one for my reception. The compliment was pleasing, but I knew too well the structure of their habitations, to suppose they could furnish me with better accommodation than my tent. Therefore I declined the offer, and chose for my encampment, a pretty thick mangoe grove, on the south west end of the town, near the foot of the hills.

As I may now promise myself a little rest from daily fatigue, I will take a slight retrospect of the country I have travelled over, before my attention is called to the objects that may here be worth particular notice.

From the ghaut of *Coadwara* to *Sirinagur*, is an assemblage of hills, jumbled together in many forms and directions, sometimes in chains, lying parallel to each other, but of no great extent, and often con-

nected at their termination, by narrow ridges, running at right angles across the vallies between. The summits of all are very narrow, and of various shapes, and the distances between each range short, consequently the vallies much confined, and a late traveller justly observes, "Not a spot is to be seen that would afford room to accommodate one thousand men in tents."

Some of these ranges are covered with forests, and are always green, some are naked and stony, neither affording shelter to the birds of the air, nor the beasts of the field. The number in cultivation form the smallest part, but so few traces of either houses or inhabitants are to be seen, that to sum up the whole in one general conclusion, depopulation and poverty are striking features throughout, and a greater share of the country seems in the undisturbed possession of the birds and beasts of the forests, than appropriated to the residence of man.

In the evening of this day, the rajah paid me the compliment of a visit, accompanied by his two brothers, and some other officers of his suite, besides a considerable crowd; of which, however, many more were led to gratify curiosity than belonged to the train of the rajah. Himself and brothers were on horseback, and except one or two others, the rest followed on foot. They dismounted at the entrance into the grove, where I met the rajah, and after the usual salutation, he introduced me to his brothers Pra-Kerem-Sah and Pretem-Sah.

This ceremony over, we proceeded to the tent, which was soon filled by this party of all descriptions: much order, however, was observed, and the rajah, after some few questions and complimentary remarks, staid about twenty minutes, when night approaching, he apologized for his hasty departure, and took leave.

He

He appears to be about twenty-seven years of age, in stature something under the middle size, of slender make, regular features, but effeminate. He speaks quick, and not remarkably distinct.

His elder brother is a stouter and more manly person; about twenty-four years, though he has the looks of riper age than his brother. They bear no resemblance to each other. The younger is a strong likeness of the rajah in make, features, and voice; a little under him in size, and, I believe, about nineteen years of age.

In their dresses, no signs of greatness or ostentation appear; they were in plain muslin jamahs with coloured turbans and kummerbunds, without jewels or other decorations, nor was the dress of the rajah in any respect more distinguishing, than those of his brothers.

I found the heat of this day very distressing; sometimes without a breath of air, and when any was evident, it came with an unpleasant warmth.

In the evening of the following day, I returned my visit to the rajah. He received me at the entrance of a court in front of the house, and conducted me by the hand to a square terrace in the center of it. I was here introduced to his vizier and dewan; and after being seated, and compliments over, he commenced a conversation, by asking several questions relative to my journey, manner of travelling, purpose for which I undertook such an expedition, repeating several he had asked the preceding day, on that subject.

He made some remarks relative to the extent of the *British* possessions in *India*, spoke of the late

Rohilla expedition, and noticed the knowledge the *English* possess in the art of war with admiration, and as unequalled by any other nation. He begged to be indulged with a sight of the exercise as practised by our troops, and the little party of sepoys with me performed it, much to his amusement and satisfaction.

After a stay of about an hour, the evening being far advanced, I took my leave.

The valley of *Sirinagur* extends about a mile an a half to the eastward, and as much to the westward of the town. The river *Aluknundra* enters the valley near a village called *Seerkote*, which bears E. ₂ N. from the town. Its course is nearly from east to west; the breadth of the channel from bank to bank about 250 yards; but in the dry season it does not exceed eighty or 100 yards. At the western extremity of the valley, the current strikes with violence against the stony base of the mountain. Near this place, the river is crossed by means of a contrivance called here a *joolah*. Two scaffolds are erected in form of a gallows, one on each side of the stream: over these are stretched very thick ropes, to form, on each hand, a support for the rest of the bridge. To these, by means of pendant ropes, a ladder is fixed horizontally, and over this tottering frame the travellers pass. The main ropes are so slack that the middle of the bridge is within a foot of the water, its breadth will barely admit of two persons abreast. The current beneath runs with rapidity, and it would be dangerous even to a good swimmer, to fall from this bridge into the river. The breadth of the stream, at this part, is about eighty yards, and its depth from ten to twenty feet.

Its bed is composed of large rounded stones, pebbles, gravel, and sand. In two or three places, large fragments

fragments of rock remain; but if no obstacles of greater consequence exist, to retard the navigation of this branch of the river, floats of timber, or canoes, might at all seasons find a passage through.

The town of *Sirinagur* occupies nearly the center of the valley; it is in length about three quarters of a mile; the breadth is much less; its form somewhat elliptic. It is formed with little attention, either to order or convenience. The houses are of stone, rough and irregularly put together, with the common earth; generally raised to a second floor; and all are covered with slate. They are so crowded as to leave little more space for the street, than is sufficient for two persons to pass one another. The principal street, and indeed the only one deserving that name, runs east and west, through the middle of the town: this is pretty broad, and is the only bazar, or market of the place.

The rájah's house is about the middle of the town, and is the largest in it; one part of it being raised to a fourth story. It is built of a coarse granite, has the appearance of being very old, is much out of repair, and exceeding shabby.

The town, viewed from an eminence, exhibits nothing striking or pleasing to the fancy.

The roads which lead into the town, excepting one, are very narrow, planted on each side with hedges of *Euphorbia Canariensis,* and backed with a wall of loose stones.

In a country, possessing such a variety of climate, it is natural to ask, what advantages induced the primitive settlers to prefer the burning valley to

of *Sirinagur* for the seat of government, to the more temperate and healthy situations in other parts of this mountainous tract. The result of my enquiries was what I expected. No other parts of the mountains, in the vicinity of the holy waters of the *Ganges*, possess, at the same time, an equal extent of plain ground, and convenience of a sufficient and constant supply of running water, two indispensable requisites in the formation of an extensive settlement, and particularly to settlers whose religious tenets teach them (and justly so) to consider the former among the most valuable gifts of nature; and enjoin them to a very liberal use of that blessing in the performance of some of the sacred functions of their cast.

The foundation of this *raje*, by the records kept in the archieves of the state, is placed at a very remote period, but they are so blended with fabulous description, that the account will hardly admit of being related, much more of receiving the sanction of authenticity.

It is stated that 3774 years before the accession of the present rajah, the country was divided into twenty-two purgunnahs, under the government of several chiefs, independant of each other, that they were united by the victorious exertions of a native of *Ahmedabad Gujerat*, named BOHG DHUNT, who with his brother SEDJE DHUNT, left their native country, to seek for better fortune: and entering the hilly tract, now called *Sirinagur*, took service with the rajah of the country. The former entertained in the service of the *Chaandpore* rajah, with whom, in a few years, he acquired considerable consequence, and was entrusted with high military authority. In this situation, at the advice of a *Jougee*, who appeared in a vision, he formed the ambitious design, not only of seizing the possessions of his master, but of aiming at the conquest of the whole country; and such was his success, that after deposing the rajah of *Chaandpore*, who was by far the most powerful in the country,

try, the rest became an easy conquest, and in the space of a few months, the whole twenty-two districts are said to have been subdued to his controul, and he continued to govern them under the title of rajah of *Geruaal* (the ancient name of the country) during the rest of his life. Dates are wanting to ascertain the length of his reign, as also to prove who were his successors, till the fifteenth generation of lineal descent, when ADJEY PAAL appears. He is said to have been the founder of *Sirinagur*, and there fixed the seat of government, where it has continued, under a succession of sixty rajahs, including the present reigning one PURDOO MAAN SAA.

At my particular request to the rajah, I was furnished with the following table of the princes who have governed this country.

	NAMES.	Number of years reigned.
	Bogh-Dhunt, the first rajah, between whose reign and Adjey Paal, 900 years passed, of which no records exist,	900
	Adjey Paal,	50
	His son, Bejey Paal,	60
	Laak Paal,	55
5	Dehrm Paal,	65
	Kerrem Paal,	70
	Narrain Deo,	72
	Hurr Deo,	45
	Govin Deo,	49
10	Raam Deo,	51
	Runjeet Deo,	53
	Inder Sain,	35
	Mander Sain,	39

	NAMES.	Number of years reigned.
	Mungul Sain,	32
15	Choora Mun,	29
	Chinta Mun,	33
	Pooren Mun,	27
	Birk-e-Baan,	79
	Bir Baan,	81
20	Soorey Baan,	79
	Kerreg Singh,	60
	Sooret Singh,	72
	Mahah Singh,	75
	Anoop Singh,	59
25	Pertaur Singh,	29
	Hurree Singh,	39
	Jaggen Naat,	55
	Byjee Naat,	65
	Gookul Naat,	54
30	Raam Naat,	75
	Goopee Naat,	82

	NAMES.	Number of years reigned.
	Lechme Naat,	69
	Preeim Naat,	71
	Saada Nund,	65
35	Perma Nund,	62
	Maha Nund,	63
	Sooka Nund,	61
	Suba Chund,	59
	Tarra Chund,	44
40	Maha Chund,	52
	Goolab Chund,	41
	Ram Narrain,	59
	Gobind Narrain,	35
	Lechmen Narrain,	37
45	Jegget Narrain,	32
	Mataub Narrain,	25
	Sheetaub Narrain,	37
	Aunund Narrain,	42
	Herry Narrain,	45
50	Mahah Narrain,	33

	NAMES.	Number of years reigned.
	Renjeet Narrain,	31
	Raamroo,	33
	Chirstnroo,	49
	Jeggeroo,	42
55	Herroo,	32
	Futteh Sah,	39
	Dooleb Sah,	50
	Purteet Sah,	35
	Lallet Sah,	40
	who died in 1781, and left four sons, was succeeded by the eldest	
60	Jakert Sah,	2½
	and was succeeded by his brother the present Rajah,	
61	Purdoo Maan Sah.	
	Total of years	3,774½

The extent and limits of this *raje*, according to the information given by the rajah's dewan, are marked on the south by *Koadwara ghat* computed forty coss from *Sirinagur*. On the north by *Buddreenaut*, called ten days journey, and on the west by *Beshaw*, thirty days journey.

The annual revenue of this country, if the rajah's word is to be taken, does not exceed five lacks and six thousand rupees. This includes duties on exports and imports, the produce in grain, &c. working of mines, and washing of gold.

The

The collections on cultivation are in some places paid in kind, in others in specie, and generally in the proportion of one half of the produce of the soil.

The remittances in specie, to the capital, I believe, are very inconsiderable; for a great deal goes in the payment of the troops allowed to each district, one fo th of whom are never in employ. It is also a custom to pay, by *tunkhas* on different districts, the troops about the capital, some descriptions of servants, and even the dancing girls and musicians who are kept in monthly hire.

Of the latter description I met several, travelling, perhaps twenty or thirty cosses, with an order on some Zemindar for three or four months arrears of pay.

The produce on washing the sands for gold does not depend on the quantity found, but upon the number employed in this business, each man undertaking this research, pays to the rajah, for that privilege, the sum of one hundred rupees yearly, and the quantity obtained is the property of the worker, without deduction.

The different places, where it is sought for, are *Kerempraag*, *Paeenkunda*, *Dewpraag*, *Rickercase*, and *Laker-ghat*.

The position of these five places, from the best descriptions I could obtain, are as follows: *Kerempraag* lies three days journey to the eastward of *Kedárnaat*, and on a small river called the *Pinder*, which has its source in the district called *Budhaan*, farther east, but here joins the *Aluknundra*. *Paeen-*

kunda is on the *Ganges; Dewpraag* at the confluence of its two branches, called *Aluknundra* and *Baghyretty; Rickercase* is on the *Ganges* about 120 cosses above *Hurdwar*; and *Laker-ghat* a few cosses lower, on the same river.

At *Naagpore* and *Dhunpore*, the former forty cosses N. E. and the latter fifty cosses N. of *Sirinagur*, are two copper mines. These are worked eight months in the year, the richness of the ore varies much, but upon an average produces fifty per cent of pure metal; one half of which goes to the rajah, the other to defray the expence of extracting it from the mines, smelting, and paying overseers.

At *Dessouly* fifty or fifty-five cosses east of *Sirinagur*, is a lead mine, the whole produce of this goes to the rajah, and the people, who work it, are kept in constant pay, though their labour is only required eight months out of twelve, and sometimes not so long; the quantity of ore extracted being in proportion to the demand the rajah has for it. As a greater encouragement to the people who undertake the working of this mine, and in consideration of the injury to which their health is exposed, they have small portions of land given to them, on the produce of which no tax is levied by the Zemindar.

Iron is produced in several parts of the country; but particularly at *Chaandpore, Belungh, Beechaan*, and *Cholah*, but the labour of extracting it is so great, that the rajah gives up the whole to those who will work it.

Other sources of revenue are the importation of rock-salt and borax from *Bootan*; musk in pods, chowries, hawks male and female, from the countries bordering on *Buddreenaat*.

From *Paeenkunda* comes a species of blanket call-ed *Punckee.* They are of sheep's wool, of a texture resembling those sold in the *Dooab* and called *Looees,* but stronger and finer.

From *Rohilcund* all kind of cotton cloths are im-ported, as also considerable quantities of salt, the kind brought from *Lahore,* known commonly by the name *Nemuk Lahooree.* This the *Bootan* people carry back in exchange for the merchandize they bring. A kind of rice is also imported from the southern coun-tries, below the ghats, remarkable for the odour it diffuses, when boiled. It is produced in several parts of *Hindustan,* but particularly in the mountain-ous countries of *Ramghur.*

At the different ghats or passes into the mountains, duties on imports and some kinds of exports are levi-ed ; which, according to the best information I could obtain, is on an average about six per cent on their value, but on some particular articles, an additional duty is laid. The pass at *Coadwara* is rented by an officer called *Hakem,* who pays annually to the rajah twelve thousand rupees.

Upon the authority of the rajah's historian, this *raaje* was, for many years, exempt from tribute to any one. In the reign of Acbar, that prince de-manded of the rajah of *Sirinagur,* an account of the revenues of his *raaje,* and a chart of the country. The rajah being then at court, repaired to the pre-sence the following day ; and in obedience to the commands of the king, presented a true statement of his finances, and for the chart of the country, he humorously introduced a lean camel, saying "this is a faithful picture of the territory I possess ; *up and down (ooncha neechu),* and very poor." The king smiled at the ingenuity of the thought, and told him that from the revenues of a country realized with so much labour, and in amount so small, he had no-thing

thing to demand. From that period, to the invasion of the country, by the *Gorka* rajah, it does not appear that tribute has been paid to any one; but on the restoration of peace, some time in the year 1792, that rajah demanded, in consideration of relinquishing all the conquests he had made in the *Sirinagur* country, that it should be subject to the payment of the sum of 25,000 rupees annually. This stipulation was ratified by the *Sirinagur* rajah, and the tribute is regularly paid. A vakeel, on his part, resides at the court of the *Gorka* rajah; and at the period when the tribute becomes due, an officer is sent, half way between *Napaul* and *Sirinagur*, to meet and receive it.

The standing forces of the rajah consist of about 5000 men, commonly called *Peädahs*: these are variously armed, according to the custom of the part of the country in which they are stationed; that is to say, with match-locks, bows and arrows, and the sword and shield: the greater number bear the latter, and it is the established and favourite weapon of the country. This body of men is distributed through the several districts, to assist in the collections of the country. One thousand of the number remain at the capital. No attention is shewn either to their dress, or discipline, and they are paid with little regularity.

The natives of *Sirinagur* profess the *Hindu* religion, in the exercise of which I could not discover any variation, from the practice of the lower parts of *Hindustan.*

The town is inhabited by two races of people, distinguished by a difference of feature. This I am inclined to account for, by supposing that many of the natives of the lower countries have, at different and distant periods, emigrated to this part of the world, for the advantage of commerce. It is also common for men of opulence and extensive trade, in other

parts of *India*, to send their agents here, to establish a kind of central communication, between *Bootaan* and the lower *Hindustan*. Many of these people have settled for the rest of their lives, and their families, naturalized, and knowing no other homes, have continued, and encreased. From the difference, in stature and features, between these people and the aborigines of the country, it may be concluded that they have little or no intercourse together. The latter are of lower stature, they have better proportioned limbs, faces rounder, eyes a little smaller, and noses shorter, but not flattened.

The dress of the *Sirinagur* mountains is seldom more, among the men, in the cold season, than a course thick blanket, folded loosely over the body, so as to cover all the breast, and reaching just below the knee. The legs and arms remain uncovered; on their heads they wear a small cap, and on their feet, a kind of netted sandal, made of leather thongs, with soles of thicker leather. In the hot season, they wear a kind of frock, of a coarse cloth, manufactured in the country, from the common cultivated hemp. This the women also wear, made into a close bodied kind of gown and petticoat, with sleeves to the elbow, above the breast drawing together with a string. Over all, they wear a loose cotton cloth, of lighter texture; they have seldom any other ornaments than beads of glass about their necks, and rings of various coloured glass upon their wrists.

I observed many of the natives of *Sirinagur* afflicted with those tumours in the neck commonly called wens: some were of a very large size, but never troublesome, or attended with pain. From my enquiries, this disorder is not general through the country, but incident only to those natives who reside near rivers which receive increase from the melting snows.

The

The country to the northward of *Sirinagur*, when viewed from one of the highest ridges, above the valley, discovers five or six ranges or broken chains of hills rising with a gradation above each other. The last or most elevated, reaches, to appearance, about half way up from the base of the stupendous *Himalaya*, whose snowy summits terminate the view from hence. None of the intermediate ranges exhibit the smallest appearance of snow; and though, in the winter season, those nearest to the high ridge, may receive partial falls of it, yet no part remains long upon their surfaces.

With the inclination to pay all possible deference and submission to the accuracy and judgment of Mr. DANIEL, who visited this capital in 1789, yet I must here notice a remark by Mr. RENNELL in his last valuable memoir of a map of *Hindustan*, given upon the authority of the former. The reader is there induced to conclude that a part of the base of the snowy mountains, is at a very inconsiderable distance from the valley of *Sirinagur*.

Mr. DANIEL acknowledges, however, he trusted to the reports of the natives, who make the distance fourteen or fifteen geographic miles. But it is certainly much greater, and, I believe, cannot be less than eighty *English* miles.

I have observed elsewhere that in tracing the river *Aluknundra* from below upwards, through the valley of *Sirinagur*, the course is eastern; and I find, as far as the information of the natives can be trusted, that in a distance of about three days journey, it takes a more northerly direction, near a place called *Roodreepraag*, where it is joined by a river about half its size, called *Kallee Gonga*, the source of which is in the mountains near *Kidaar-nauth* to the north: and its principal branch from a place called *Sindoo Sogur*, issuing out of the rocks. From *Roodreepraag* the course is continued about N. E. and at

at the distance of three days journey, in that direction, near *Kerempraag*, the *Aluknundra* receives a small river, called *Pinder*, the source of which is in *Budhaan*, the country bordering the rajah's territories on the N. E.

From *Kerempraag*, at the distance of two days journey, in much the same direction, and near a place called *Nundpraag*, it receives the *Gurrela Ganga*. This branch runs through the district of *Dessouly*, and has its source in the mountains to the eastward.

From *Nundpraag*, the *Aluknundra* is said to take a more northerly direction, and at *Bissenpraag*, receives a river from the eastward as large as itself, called *Dood Ganga*, or the milk river, it also is known by the name *Dhoulee*. Pretty near its junction with the *Aluknundra*, it runs between two villages called *Gurra* and *Nitty*.

Bissenpraag is situated near the base of the mountain, on which stands the famous temple of *Buddreenaat*; and is of some importance, as being the residence of the pundits and principal *Hindus* of *Buddreenaat*. Here they hold their durbars, exercise their laws and the duties of their religion, in the greatest state of security from foreign intruders, and can at any time seclude themselves from the rest of the world, by a removal of the *joalahs* or rope bridges, which form the communication across the *Aluknundra*.

The town consists of about 800 houses, it is a place of some trade, and the inhabitants are all *Hindus*: my informer told me, no one of any other religion, has yet found his way to *Buddrenaat*, and that if I attempted the visit, it must be at the express permission of the rajah of *Sirinagur*. It was, hitherto, a part of my plan, to proceed as far as that celebrated spot, and I had every encouragement to believe

believe this permission would have been granted me. But I found, on the most particular enquiry, as to the nature of the road, that I should not be able to execute the journey in less than fifteen days; even without halting, for the purpose of rest, or prosecuting any enquiries, relative to the nature or productions of the country. My return, therefore, could not have been effected in time to leave the mountainous country before the commencement of the periodical rains. I consequently determined on leaving *Sirinagur*, and marching back by the tract I came.

The immediate execution of this plan became necessary, because the excessive heat had already begun to shew its influence upon my servants, two or three of whom were laid up with violent fevers. I therefore took leave of the rajah on the evening of the 2d, and next morning began my march towards *Futtehgurh*; which was accomplished, without any occurrence, that merits to be recorded.

ENUMERATION *of* PLANTS *noticed in the preceding Tour, between* Hurdwar *and* Sirinagur, *in the months of* April *and* May, 1796.

MONANDRIA MONOGYNIA.

Costus Speciosus of Dr. SMITH.—Common to the skirts of these mountains; the stems now in a dry and withered state, the roots brought thence have since flowered. Flowers white, large, produced in a close imbricated terminal spike. Leaves sessile, in spiral like order, lanced, entire, one nerved, smooth, veinless. Calyx above, cylindrical, tubular, three cleft; divisions lanced, erect, coloured, permanent. Petals three, unequal, ovate, pointed, with the base slightly truncated. Nectary one leaved, large, waved, spreading, two lipp'd: base tubular, superior lip oblong, lanced, three toothed, shorter than the inferior, anther-bearing. Anthers oblong, two parted, adhering to the upper lip of the nectary, an inch below the point. Germ beneath, roundish, gibbous, style shorter than the nectary, filiform, placed between the anthers. Stigma headed. Pericarp, &c. as in LIN. crowned with the highly coloured calyx. Flowers in *August.*

Curcuma.—In the forests between *Hurdwar* and *Coadwara ghat*, now in flower. Scape from nine to twelve inches high, crowded with yellow flowers and numerous large, ovate-pointed bracts, imbricated; and towards the extremity of the scape, highly coloured with a rose red. Leaves radical, long, and lanced, but do not appear during inflorescence.

DIANDRIA MONOGYNIA.

Jasminum 1.——With climbing stem, columnar; branches opposite, distant. Leaves simple, opposite, petioled, oblong, ovate, accuminate, entire, smooth, four inches by one and a half. Flowers axillary,

axillary, sometimes terminal; peduncles long, slender, threadform, two or three from the same base, one flowered. Calyx very small, tubular, five-toothed: toothlets short. Corol tubular, long. Border five-parted, divisions longer than the tube, linear. Found climbing among other bushes at *Dosah*.

Jasminum 2.—Leaves simple, paired, few, petioled, ovate, much rounded, entire, terminated by a short obtuse acumen; the large leaves three and a half inches long, two and a half broad. Flowers in small terminal cymes. Calyx belled, small, five-toothed; toothlets linear, distant. Corol tubular, cylindrical. Border the length of the tube, five-parted, oblong, equal. Grows to a small tree, in the forests about *Hurdwar*. Flowers, white, sweet scented.

Jasminum 3.—Leaves alternate, pinnated with an odd one; leaflets from two to three pair, subsessile, lance-ovate, entire, smooth, the lower ones least, terminal one largest, eleven lines by five, but variable. Petioles angular. Peduncles terminal, slender, one flowered. Calyx small, belled, five-toothed; toothlets, awled, small, distant. Corol, tubular, long. Border five-parted, divisions ovate, shorter than the tube, spreading. Branches angular, straggling. Found on the side of a water-course, between the mountains at *Adwaanee*, grows to a large bush, flowers yellow, and very sweet.

Justicia Thyrsiformis.—Leaves opposite, petioled, elliptico-lanceolate, intire. The flowers are produced on thyrse-like terminal spikes, intermixed with numerous oblong bracts, ringent, and of a dull orange colour. It comes nearest to *Justicia Coccinea* of Dr. Smith, in 2d *Fas.* No. 8. The trivial name is added on the opinion of Doctor Roxburgh. It grows to a large strong bush on the sides of the *Koa-nullah*, near *Amsour*.

Salvia integrifolia. — Leaves opposite, sessile, subovate, entire, woolly, mostly from the lower part of

of the stem. Flowers in whorls; of a light blue, about six in each whorl. Calyx two lipped, the upper lip three toothed, the lower two toothed, and twice longer; the mouth much enlarged. Grows among stones, with a strong fibrous root, difficult to withdraw. Stem herbaceous, about a foot high, angular. The natives gather the young flowers and dress with their common food. The specific name is given on the opinion of Doctor ROXBURGH.

TRIANDRIA MONOGYNIA.

Valeriana.—Leaves various, those of the root hearted, obtuse intire; petioles semicylindrical, long, downy, stem leaves sessile, more pointed, sometimes slightly lobed at the base. Flowers triandrous, of a pale pink and white, in compound terminal umbells. Seeds crowned with a twelve-rayed pappus. Root fleshy, sending forth many long slender fibres, soon after taken out of the earth, becomes highly scented, which it retains as long as in a vegetating state. It is found in several parts of the mountains, affects moist and shaded situations, is herbaceous, grows to about eighteen inches high, very slender. It seems to differ only in the root from the *Jatamansi* of Doctor ROXBURGH, to which these have no resemblance.

TETRANDRIA MONOGYNIA.

Ixora. tomentosa of Doctor ROXBURGH.—Found in the neighbourhood of *Ghinouly*, near the *Koa-nullah*, acquires the size of a pretty large tree, though of deformed growth, now in flower. Flowers white, numerous.

PENTANDRIA MONOGYNIA.

Androsace, rotundifolia. — A beautiful little herbaceous plant, found in great abundance on the most elevated ridges of mountains, one day's

journey

journey S. W. of *Sirinagur*. Leaves radical, petioled, subrotund, irregularly sinuated. Petioles very long, villous. Flowers about the size of a cowslip, in umbells, a pretty mixture of white and red, with tints of yellow. Involucre, many leaved, the leaves toothed. Perianths, unequal, in some flowers larger than the corol, many scattered hairs mixed with the flowers.

Lonicera quinquelocularis.—A pretty large bush, with long slender branches. Leaves opposite, petioled, ovate, pointed, sometimes elliptical, entire. Flowers axillary, on short solitary peduncles, each peduncle raising two sessile florets. At the base of the florets, a one-leaved bract, or rather, I think, common calyx, two parted, divisions ovate, concave, coloured. Proper perianth above, small, five toothed, coloured, withering. Corol, one petalled, tubular. Border two parted, or two lipp'd; upper lip oblong, obtuse, entire, reflected; lower more than twice broader, four toothed. Pericarp in an half ripe state, appears to be a capsule, five celled, with about five small, ovate, red seeds in each cell. Doctor ROXBURGH considers the characters of *Lonicera* and *Hamellia* united in this plant, but thinks the irregular corol will fix it as a specimen of the former, and to the second section thereof, and comes nearest *Xylosteum*, but the five celled capsule, and very short common peduncle precludes the idea of their being the same. It grows in the vallies about *Adwaanee*.

Verbascum Thapsus.—In the valley near *Dosah*; a robust plant, from four to five feet high, and from the profusion of its yellow flowers, very showy. The natives have a superstitious notion of the efficacy of this plant in protecting them from the visitations of evil spirits. It is known by the name *Aakul-ber, or ver.*

Datura, Stramonium.—In every part of the mountains, where villages are found. The natives are

well acquainted with its narcotic powers, and infuse the

the seeds to increase the intoxicating powers of their common spirituous liquors. The capsules they use as a suppurative. *Datura* is also the name of this plant, in most parts of *Hindustan;* and probably has been carried from the east, to the western world.

Ehretia Tinifolia.—Found both above and below the ghauts—grows to a pretty large tree, now in flower, ripens its fruit about the end of *May.* The berry is about the size of a pepper corn, one celled, four seeded, of an orange yellow insipidly sweet. The natives pickle the unripe berries in vinegar, and eat with their common food.

Vintilago.—Leaves alternate, petioled, two faced, oblong-ovate, acuminated, slightly serrated, serratures wide, unequal: petioles very short, cylindrical, downy. Panicles terminal, peduncles, downy. This plant climbs over other trees with a strong contorted stem. The natives of the mountains apply the bark in a green state, to many useful purposes, as cordage.

Celastrus Scandens 1.—In most of the forests about *Hurdwar,* and vallies above the ghauts.

Celastrus 2.—Leaves alternate, petioled, subrotund, acuminated, serrulate, smooth. Branches slender, cylindrical, spotted. Flowers, in terminal dichotomous, panicles, very small, pale green. Grows to a small tree—in the valley about *Dosah* and *Ghinouly.*

Cedrela.—The tree commonly called *Toon,* described by Sir WILLIAM JONES, in A. R. vol. IV, page 281, is found in the forests bordering the mountains below the ghauts. Grows to a tall tree, but seldom of considerable thickness. Is more in esteem for household furniture by *Europeans,* than for any use the natives put it to; bears resemblance to mahogany, but of much coarser fibre.

Doubtful genus coming nearest to *Hirtella.*—A small tree on the verge of a rivulet, a few miles S. W. of *Sirinagur,* near the road. Leaves diffuse, petioled, ovate, entire smooth. Petioles long, cylindrical, highly

highly coloured, of a dark shining red, the nerves and veins of the leaves, young branches and leaves coloured in the same manner. Flowers very small, produced on terminal compound diffuse panicles. Peduncles long, very slender, filiform, hairy, stained. Calyx beneath, five cleft, divisions equal, ovate pointed. Corol, five petals, equal, ovate, obtuse, filaments five, very short. Germ, reniform, compressed. Style from the depressed margin of the germ, very short. Stigma simple, a little depressed. Pericarp, resembles a legume, about the size of the seed of *Ervum-lens*, reniform, containing one seed of the same shape, attached to the suture of the valve.

Vitis.—Leaves agree pretty well with the description of *v. Indica*, except that in this plant, they are extremely hoary on both sides, white beneath, brown above, five nerved. The petioles, peduncles, and cirri, are also very hoary. Grows in dry situations in the forests about *Dosah* and *Belkate*, now in flower.

Gardenia Uliginosa 1. Roxburgh.—Grows to a large tree in the forests on the borders of the mountain, between *Hurdwar* and *Coadwara*. The flowers hexandrous, very large, coriaceous, of a cream white. It is fouud also in the lower parts of *Rohilcund* near *Futtehgurh*, flowers in the month of *June*.

Gardenia 2.—A small tree in the vicinity of *Hurdwar*, thorny, branches opposite and thorny, thorns opposite, diverging, rigid streight, one terminating the branch, an inch or more in length. Leaves obvate, attenuated at the base, half sessile, bundled, three or more entire. Flowers mostly hexandrous; of a yellowish white mixed with green, scattered about the extremities of the branches, sessile; during inflorescence, few leaves on the tree, and those of the preceding year, ripe fruit remaining, about the bigness of a middle sized orange, orbicular; resembles more a drupe than berry. Seeds nume-

rous, nestling in a softish pulp, contained in a hard five or six valved shell, and this enveloped in a spongy fleshy pulp, half an inch thick, of a greenish white within, externally of a brownish ash, and smooth.

Gardenia 3.—A plant of humble growth, shrubby, none seen exceeding two feet in height, growing among fragments of rocks on the elevated ridge near *Chichooa*. Leaves terminating the branches, without order, rather crowded, petioled, mostly obovate, entire, smooth, one inch by half an inch, petiole very short. Flowers axillary, single, on solitary short peduncles, of a greenish white colour, and very sweet to the smell. Perianth above, one leaved, half five cleft, divisions awled, erect, permanent. Corol, funnel form, tube long, widening upwards, partly closed about the middle by a ring of silky down. Border five-parted, divisions ovate, equal. Filaments short, within the tube. Anthers oblong, partly within the tube. Germ globular. Style length of the tube. Stigma two lobed, lobes, ovate, flattened, appressed. Pericarp, a berry crowned with the calyx, about the size of a common pea, one celled, four seeded.

Nerium reticulata. 1.—A strong climber, about the trees near *Amsour*.

Nerium 2.—With leaves opposite, petioled, ovate, pointed entire, downy; petioles very short, gibbous: follicles two, long, a little compressed, breadth of the forefinger. The flowers terminate the branches, on four or five short divided peduncles, about the size of a primrose, of a greenish white, very sweet scented. It is found in plenty in the forests at the foot of the ghaut. Both flower and fruit now on the tree. The nectary in this species differs from the generic description; it is here composed of twelve yellow tridentated scales, about half the length of the stamens, neither are the anthers terminated by threads, but rigid at the apices. I have called it a *Nerium* in deference to the

the judgment of a better botanist, but it will bear comparison with the next genus *Echites*, I think.

Echites Antidysentricum. Rox.—A small tree in the forests about *Hurdwar.* Leaves opposite, half or sub-petioled, ovate, oblong, pointed, entire, waved, smooth, shining, one nerved, with many pairs of lateral, parallel, ribs. The *Linnean* characters of the fructification, do not strictly agree with this plant. The nectary is here wanting. Anthers almost at the bottom of the tube, filaments, scarcely any. The follicles agree with those of *Nerium Antidysentricum.* The seeds are in great repute among the natives of *Hindustan* as a vermifuge.

Genus not determined.—A small tree, or rather large bush, growing by the road side near *Teyka-ka-Maanda.* Leaves about the tops of the branches, irregularly opposite, petioled, ovate, variously pointed, serrated, smooth, one nerved; petioles short. Flowers panicled about the ends of the branches—yellowish, with many brown veins, more coloured above. Calyx five cleft, expanding, the divisions slightly lacerated at the edges, rounded, coloured. Corol, five petaled—petals oblong, ovate, obtuse, twice larger than the calyx, with a short claw. Filaments five, shorter than the corol, enlarged below, and resembling the germ, slightly coalescing at the base into a ring. Anthers oblong, erect. Germ above, orbicular, smooth, the size of the glandulous base of the stamens, in the center of them. Style the length of the stamens, filiform, stigma simple, truncated. Pericarp, not seen.

PENTANDRIA DIGYNIA.

Apocynum.—A strong climbing bush, spreading itself with much profusion over the under wood of forests between *Dosah* and *Sirinagur.* The flowers numerous, pure white, and highly scented, size of a primrose, branches cylindrical, opposite, leaves in the same order, petioled, lance-ovate, entire, smooth; petioles short. Calyx five-parted, small, lanced, downy. Corol one petaled, wheeled, tube,

 length

length of the calyx. Border five cleft, segments, equal, rounded, spreading. Nectary, five glandulous bodies, surrounding the germ, filaments five, short, compressed, internally downy, anthers rigid, oblong, pointed, converging, cleft at the base. Germs two. Style length of the stamens, stigma oval, compressed, two lobed, attenuated. Pericarp, follicles two, oblong, bellied, pointed, smooth, one celled, one valved, seeds numerous, imbricated, compressed, crowned with long silky pappus. It bears some affinity to the genus *Echites*. It is also found in several parts of *Rohilcund* and the *Dooab*.

Asclepias doubtful.—A shrubby climber, now coming into flower—branches cylindrical, smooth, opposite. Leaves opposite, heart ovate, much rounded beneath, pointed above, petioled. Flowers in axillary nodding cymes, of a pale green. Calyx five-cleft, small, villous, divisions ovate, equal, spreading. Corol flat, border five-cleft, segments broad, obtusely ovate. Nectary, five glandular corpuscles, into which the anthers are inserted without filaments. Germs two, styles none. Pericarp not seen, therefore its place in the system yet doubtful. Found near the ghat of *Coadwara*.

Herniaria, doubtful.—A shrubby bush, with numerous slender stems and branches, and covered with a profusion of minute yellow flowers. Leaves alternate, petioled, ovate, rather elliptical, entire, smooth, petioles short. Calyx five-parted, divisions unequal, erect, coloured. Corol none. Nectary, five minute glandulous, three toothed scales, surrounding the foot of the styles. Filaments five, capillary, longer than the calyx, erect, inserted into the base of the calyx. Anthers, simple, erect. Styles two, filiform. Stigmas simple, recurvated. Germ too minute for inspection in its present state, and as the pericarp is not yet seen, future observation must determine the genus yet doubtful. Many bushes of it grow in the forest about *Coadwara*—it was observed in the middle of *May*, therefore we may

may conclude the month of *June* would be a fitter time for the examination.

Gentiana Nana.—Growing and flowering, in much abundance and beauty, on the elevated mountains near *Chichooa.*

PENTANDRIA TRIGYNIA.

A slender twiggy climbing plant, on the mountains near *Hurdwar.* Branches alternate, columnar, smooth, scattered. Leaves alternate, shortly petioled, ovate, oblong, attenuated, sometimes a little hearted at the base, entire, smooth, distant. Near the termination of each branch is generally one simple cirrus. Flowers terminal, sometimes axillary, in slender diffuse panicles, rather inconspicuous, and very small. Calyx, one leaved, half five-cleft, divisions equal. Corol none. Stamens five, little longer than the calyx. Anthers twin. Germs three, orbicular, smooth, very small. Style one, the length of the stamens,. Stigma headed, five-cornered. Pericarp.

PENTANDRIA PENTAGYNIA.

Linum trigynum. Roxb.—A plant well known in our gardens at *Cawnpore* and *Lucknow*, by the name *Gul-ashurfee*, is a native of the high mountains, between *Nataana* and *Adwaanee.* It is perennial, shrubby, grows to a spreading bush about four feet high, stem and branches erect, slender, piped. It makes a handsome appearance with its numerous yellow flowers in *March* and *April,* would doubtless by some care thrive in the climate of *Britain.*

HEXANDRIA MONOGYNIA.

Berberis Ilicifolia.—Grows in plenty in the valley through which the *Koa-nullah* has its course, now full in flower, and green fruit. The fruit when ripe is black, and eat by the natives. The wood is of a

 deep

deep yellow, and used in dying, but under the management of the natives the colour is not permanent.

HEXANDRIA TRIGYNIA.

Rumex Aegyptius and *Rumex Acetosella.*—Along the sides and dry parts of the *Koa-nullah.*

OCTANDRIA MONOGYNIA.

Polygonum Convolvulus.—Growing along the sides of the *Koa-nullah.* In some parts of these mountains it is cultivated for common food among the poorer natives.

ENEANDRIA MONOGYNIA.

Laurus Cassia.—Grows to the size of a small tree, on the sides of the mountains, near the roads to the northward of *Belkate.* In addition to the *Linnean* generic characters, noticed. Petals hairy, anthers the length of the filaments, slightly compressed, four celled, four valved, or with four lids, which on the exclusion of the pollen, fly up, and leave the cells very distinct.

DECANDRIA MONOGYNIA.

Bauhinia Scandens.—Growing on the skirts of the forest along the *Ganges,* near *Hurdwar,* spreading itself most profusely over the heads of every other tree; and mostly concealing with its broad leaves, the foliage and branches of the trees on which it climbs. The flowers are a mixture of white and cream colour, produced on simple terminal racemes. Stamens unequal, three only fertile. Legume large compressed. Found also on the mountains above the *ghats.*

Bauhinia Variegata.—Common to the mountains; also a variety with milk white flowers, both in flower.

Guilandina Moringa.—In the forests at the foot of the mountains. Trees very large and numerous, now in fruit only.

Murraya Exotica.—Growing to the size of a large bush in the valley near *Amsour*, now in flower.

Melia Azadirachta.—Grows to a large spreading tree in the forest near *Coadwara*, now in flower.

Doubtful.—Growing near *Coadwara* at the foot of the *ghat*, and in the neighbourhood of *Hurdwar*, a large spreading lofty tree, full in flower, the young leaves just starting forth; these are pinnated: leaflets from five to six pair, with an odd one, sessile, ovate, pointed, serrated. Flowers of a pale yellow, varied by tints of brownish orange from the coloured calyxes, produced on terminal compound racemes. Calyx one leaved, pitchered, coloured, mouth five-cleft, expanding, withering. Corol petals five, lance-linear, alternate with the divisions of the calyx, and inserted into the sinuses. Stamens, filaments ten, awled, hairy, the alternate ones shorter, inserted into the calyx, anthers oblong, furrowed. Pistil, germ above, roundish, slightly depressed. Style thread-form, the length of the calyx, hairy, partly coloured. Stigma, headed, depressed, five-cornered. Pericarp drupe, dry, orbicular, with distant rounded angles, depressed. Seed, nuts five, size of a small pepper-corn, roundish, hard, furrowed, each containing one seed, of the same form. It comes nearest to *Quisqualis*, and if it cannot be admitted there, will probably form a new genus.

Doubtful.—Growing in forests of oak on the high ridge of mountains near *Adwaanee*, a large tree, just now conspicuous, for its abundant display of large crimson flowers, leaves without order about the upper part of the branches, petioled, lance-oblong, entire smooth above, hoary white beneath. The flowers, are produced on terminal simple racemes. Calyx one leaved, very small, coloured, five toothed, toothlets obtuse, the two superior

 ones

ones larger, deciduous. Corol, one petaled, large, tubular, bell mouthed, tube very wide, contracting at the case. Border five cleft, divisions broad, unequally end nicked. Stamens, filaments ten, of unequal lengths, the longest the length of the corol, erect, appressed to the sides of the germ. Anthers oblong, thick, incumbent. Germ above, columnar, hoary, marked with the pressure of the stamens. Style longer than the stamens. Stigma headed, round, depressed. Pericarp, capsule, columnar, ten celled, many seeded. It approaches nearest to *Rhododendron*, but will probably not be admissible there; and, perhaps, will form a new genus. The natives called it *Boorans*, the wood is used for making the stocks of matchlocks.

Arbutus doubtful.—A tree of medium size found in forests of fir, oak, &c. between *Nataana* and *Adwaanee*, crowded racemes of white monopetalous flowers, terminal and drooping. Leaves alternate, petioled ovate, pointed, entire, Calyx half five-cleft, small, divisions ovate, erect. Corol pitchered, many times longer than the calyx, bellied, neck very narrow; mouth five toothed, toothlets equal, short, obtuse. Stamens, filaments ten, sometimes longer than the coral, and confined by the narrowness of the neck within it, awled, thick at the base, somewhat hairy, inserted into the base of the tube. Germ above, globular, seated on a five-cornered fleshy receptacle. Pericarp (in an unripe state) berry five-celled, many seeded. The natives call the tree *Aiuar*, and apply the expressed juice of the leaves with much success in cutaneous eruptions.

DECANDRIA TRIGYNIA.

Banisteria Benghalensis, *Lin.* Syst. Nat. cur. GMEL. II. p. 724.—*Gærtnera Indica*, ib. p. 685.—*Hiptage Mada bleta*, GÆRTNER, II. 169, t. 116.—*Gærtnera Racemosa*, ROXB. *Ind.* Plants, Vol. I. N. 18.—This plant so well described by the late Sir WILLIAM JONES, vol. IV. *Asiatick* Researches,

searches, grows in great abundance in several parts of the mountains, but particularly on the banks of the *Koa-nullah* near *Dosah*, climbing profusely upon other trees, and beautiful in display of its crowded racemes of flowers.

DECANDRIA PENTAGYNIA.

Spondias Myrobalanus.—A forest tree between *Amsour* and *Ghinouly*, now in flower.

Sedum Album.—Growing out of the interstices of stone walls, laid against the slopes of mountains, to retain the soil from washing down. The white flowers have tints of pale red, and make a pretty show in so humble a plant.

Oxalis Acetosella.—On the heights of *Chichooa*, on a small spot of pasture.

Cerastium Alpinum.—About *Teyka-ka-Maanda.*

Doubtful.—Found in the neighbourhood of *Adwaanee.* A slender bushy shrub. Leaves opposite, sub-petioled, lance-ovate, sometimes obtuse, serrulate, rough, downy beneath. Calyx one-leaved, belled: border half five-cleft: division equal, ovate, pointed, erect Corol, petals five, ovate, cut off at the base, equal, about twice longer than the calyx, spreading. Nectaries, ten oblong, compressed, erect scales, forming a coronet, but not conjoined; as long as the petals, the alternate ones less, broadest at their apices, and widely notched, staminiferous, seated on the germ-covering receptacle. Stamens, filaments ten, very short, filiform, of which five are inserted into the apices of the longest nectarious scales, and five into the sides of the shorter, about the middle. Anthers globular, four cornered, alternately less, erect. Germ above, globular, covered with a fleshy depressed ring. Styles five, filiform, length of the petals, approximated, rising through the middle of the germ-covering receptacle. Stigmas simple. Pericarp (in an unripe state) capsular, round, five-celled. Seeds numerous, attached to a recep-

a receptacle in each cell. It will most likely form a new genus. The flowers are white, on terminal, solitary racemes, and scattered.

DODECANDRIA MONOGYNIA.

Cartaeva Tapia.—A forest tree in the neighbourhood of the mountains, and now in flower.

Grislea-tomentosa, Dr. ROXBURGH.—In great plenty about *Hurdwar*, and the interior part of the mountains. The flower used as a cooling medicine by the natives, and as a colouring drug in combination with the root of *Morinda Citrifolia* in dying red, as described by Dr. HUNTER, in *Asiatick* Researches, vol. IV.

DODECANDRIA TRIGYNIA.

Euphorbia-Canariensis.—In several parts of the mountains.

ICOSANDRIA MONOGYNIA.

Punica-granatum.—Growing on the sides of the mountains, between *Belkate* and *Nataana*, two or three small trees, now in flower; the fruit never eatable the natives say; called by them *Daarmee-Kutta.*

Prunus.—A cherry tree, of common size, found in several places, between the mountains. Leaves irregularly alternate, petioled, serrulated, smooth, shining, with two globular glands at the base.—The fruit in clusters, about the size of the black *Hertfordshire* cherry, of a roundish oval, acid and astringent in a ripe state, and of a dull red colour. The nut furrowed and thick. The wood is in much esteem among the travelling *Fakeers* for bludgeons and walking sticks, and known in common by the name of *Puddum.*

ICOSANDRIA DIGYNIA.

Cratægus.—Growing among detached rocks on the high

high mountains near *Chichooa.* Stem woody, slender, procumbent. Branches without order, mostly two-faced, columnar, terminating with an obtuse rigid point. Leaves, the youngest fascicled, when more advanced appear alternate, petioled, wedge-form, sometimes ovate, entire, hairy beneath, smooth and shining, above five-eighths of an inch in length, including a petiole of one-eighth. Peduncles axillary, solitary, one-flowered, short, hairy, Calyxes hairy.—Flowers white, fragrant. Berry, size of a common pea, red when ripe.

ICOSANDRIA PENTAGYNIA.

Pyrus.—With branches alternate, slender, cylindrical. Leaves, about the ends of the branches, long-petioled, ovate, accuminated, serrulate, smooth. Peduncles solitary, cylindrical, long, erect, intermixed with the leaves. Fruit globular, size of a pigeon's egg, of a russet-brown, spotted, harsh to the taste, and stony. Grows to a small tree in several parts of the mountains between *Nataana* and *Adwaanee.* Flowers in *March.*

Spiraea? doubtful.—Leaves alternate, oblong, ovate, petioled, entire towards the base, obscurely crenate upwards, sometimes entire. Corymbs terminal. Flowers small, numerous, of a yellowish white. Calyx, corol, stamens, and pistil, not materially differing from the *Linnean* characters; but to these must be added in the present species—Nectary twelve small, fleshy, compressed, oblong scales, covering the base of the stamens, and united below to the side of the calyx, emarginated above. Pericarp not seen. Grows to a slender tall twiggy bush. Found a few miles S. W. of *Sirinagur,* near the village of *Nandaala.* It most resembles *S. Crenata* of LINNÆUS.

ICOSANDRIA POLYGYNIA.

Rosa.—Stems numerous, smooth, thorny. Leaves alternate.

alternate. Petioles thorny, pinnated, from three to five pair of leaflets with an odd one, ovate, pointed, smooth, serrated. Germ ovate, smooth. Peduncles hispid. Flowers pure white, in great profusion, and highly fragrant, resembling in smell the clove. Very large bushes of this rose are found in the vallies of these mountains, called by the natives *Koonja.*

Rubus.—Numerous straggling bushes, found most part of the way between *Coadwara ghat* and *Sirinagur,* producing yellow fruit the size of the common red raspberry, of an agreeable acidulated sweet, and which affords a most acceptable means of relieving the thirsty traveller. The stems, branches, and petioles, are very hispid, and armed with short recurvated prickles. Racemes terminal. Flowers white. Leaves alternate. Leaflets ovate, pointed, serrated. Called by the natives *Gowry-phul.*

Rubus Idaeus.—Found in oak forests, a few miles S. W. of *Sirinagur*, and in the valley of *Sirinagur.* Flowers of a pink red. Fruit, agreeable to the taste, but possessing, in a very small degree, the flavor of cultivated raspberry. The stems and branches smooth, armed with strong recurvated prickles, as also the common petiole. Leaflets, from three to five pair, with an odd one. Sessile ovate, deeply serrated, white beneath.

Fragaria Sterilis.—On the sides of those mountains which are much shaded, and soil rich.

Potentilla fragarioides.—On the mountains about *Nataana.*

Potentilla reptans.—On the high ridge near *Chichooa.*

POLYANDRIA MONOGYNIA.

Lagerstroemia Montana, ROXBURGH.—This tree grows to sixty or seventy feet high. Stem straight, thick, and clear of branches to a great height (forty feet). Flowers with much beauty in the month of *May.* Grows both above and below the *ghats.* Trees not numerous.

Doubtful,

Doubtful.—Found between *Adwaanee* and *Teyka-ka-Maanda*, a small tree thickly covered with flowers of a yellowish white, and so fragrant as to be evident to the senses at a considerable distance. It bears the following characters. Leaves alternate, petioled, ovate, serrated, about the base almost entire, smooth above, nerves hairy beneath. Petioles very short, channeled hairy. Racemes rather simple, terminal, and from the axills of the leaves, numerous. Peduncles hairy. Calyx perianth, one leaved, half five-cleft, coloured: divisions thin, obtusely ovate, rather unequal. Corol, petals, five, ovate, rounded, two a little less, slightly adhering to each other at the base. Nectaries, five rounded, compressed glands, sitting on the germ, surrounding the style. Stamens, filaments thirty or more, longer than the corol, unequal, slightly attached in parcels to the base of the petals. Anthers roundish, erect. Germ beneath. Style shorter than the filaments, thicker, compressed. Stigma headed, depressed. Pericarp (in an unripe state) two celled, in each two or three ovate seeds. It has most affinity, perhaps, with the genus *Tilia*, except in the pericarp, and on the examination of this, when it can be obtained perfect, we must depend to ascertain its place in the system.

POLYANDRIA POLYGYNIA.

Uvaria.—Near *Coadwara,* above the *ghauts,* a very lofty tree.

DIDYNAMIA GYMNOSPERMIA.

Ballota.—A bushy half shrubby plant on the side of the mountains, and near the road descending into the valley of *Belkate.* About three feet high, seemingly annual, stems and branches four cornered. Leaves opposite, petioled, ovate, acuminate, serrated, (teeth distant, deep, obtuse), downy, veined. Flowers axillary. Peduncles very short, solitary, six flowered, have the appearance of verticels, bracted.

bracted. Calyx tubular, long, ten striated, bell-mouthed: border five-parted: the divisions subovate, veined, leaf-like, as long as the tube, erect. The rest of the fructification not differing materially from the generic characters of LINNÆUS. The whole plant is extremely bitter, and used by the natives in watery infusions as a stomachic.

DIDYNAMIA ANGIOSPERMIA.

Bignonia Chelonoides.—Grows to a pretty large tree in the neighbourhood of *Hurdwar* and *Coadwara.* Nothing remains to be said in addition to the minute description given of this plant by the late Sir WILLIAM JONES, *Asiatick* Researches, vol. IV.

Gmelina Arborea.—A large spreading tree in the neighbourhood of *Hurdwar*, and forests on the skirts of these mountains, now in flower, the fruit ripens about the end of *May*. The wood is light, and used by the natives of *Hindustan* for making the cylinders of those drums called *D'holuks.* Name of the tree *Kum-haar.*

Volkameria? bicolor.—A very handsome species, (if a *Volkameria)* the trivial name taken from the party-coloured corol, one division of which is of a fine blue, the other pure white. Racemes terminal, compound, large. Leaves opposite, petioled, from six to ten pairs on a branchlet, ovate, lance-acuminated, entire towards the base, above, (as far as the acumen), serrated. The calyxes and seeds of this plant are highly aromatic. It grows in abundance in several vallies of these mountains, now in full flower, and ripened seeds.

Vitex trifolia.—Common both above and below the *ghauts.*

MONADELPHIA MONOGYNIA.

A tree in the forests, near *Coadwara*, now in fruit, a large berry, as big as a common sized lemon, and somewhat of that shape, growing in close clus-

ters, five or six, sessile, and crowned with the enlarged permanent calyx, some retaining the whole of the dry fructification, perfect enough for examination, and which exhibit the following characters. Calyx four-parted, above: divisions ovate, obtuse, concave. Corol, petals four, rather obovate, oblong, twice the length of the divisions of the calyx (1 inch $\frac{1}{13}$), truncated at the base, stamens, filaments very numerous (300), capillary conjoined below in a ring, and seated on the receptacle covering the germ. Style longer than the stamens, thicker, filiform. Stigma headed. The berry is composed of a spongy whitish pulp. Seeds, six, eight, or more, nestling, about the size of the seeds of a citron, and of that form, a little compressed. Leaves, terminating the branches, subsessile, subrotund, attenuated at the base, ending in a short acumen above, serrated large, a perfect description and figure of this plant, may be expected from the extensive and invaluable collection of Mr. R. BRUCE, where it has been for some years, and forms one of the many new genera, wherewith that gentleman is about to enrich the science of botany.

MONADELPHIA DECANDRIA.

Geranium.—A very slender herbaceous kind, growing among weeds and bushes on the highest mountains about *Nataana.* Leaves petioled, from three to five lobed, lobes trifid; petioles very long, filiform. Peduncles axillary, solitary, resembling the petioles, one flowered. Flowers pale rose, with a deep purple eye at the base of each petal.

MONADELPHIA POLYANDRIA.

Bombax Ceiba.—Grows in the vallies of these mountains to a very considerable tree, none exceeding it in size, and regularity of growth: its wood is converted to many uses, where lightness more than strength is sought for. For the scabbards of swords, it is much used, and canoes of large

size

size are hollowed from its trunk. A variety of this tree is also found with flowers of a reddish yellow, the petals, oblong ovate.

Bombax Gossypium.—A small tree, a great ornament to the sloping sides of the mountains in the vicinity of *Hurdwar*, the flowers yellow, large, and conspicuously bright, on simple terminal racemes, no leaves during inflorescence. The wood of this tree resembles, for its lightness, that of *Bombax Ceiba*, and the young branches abound in a transparent white mucilage, which is given out on immersion in cold water. Seeds sent to the botanical garden in *Calcutta* have come up.

DIADELPHIA DECANDRIA.

Robinia 1.—A large tree with spreading bushy head, leaves pinnated, leaflets petioled, two pair with an odd one, large, ovate, entire, shortly acuminated, smooth, shining. Racemes axillary, simple, large and showy; flowers white mixed with pink. Peduncles *common*, columnar, long; *proper*, short, one-flowered. Legume short, between oval and kidney shape, turgid, a little compressed, one seeded, seed more reniform, compressed, covered with a dark brown arill. The leaves, racemes, &c. have an unpleasant smell. The natives apply the expressed juice of the unripe legumes, as a remedy for the itch. The tree is called by them *Pitpapra*, is found both below and above the *ghats*.

Robinia 2.—With woody climbing stem and branches, leaves pinnated with an odd one, leaflets from three to five pair, with short gibbous petioles, oblong ovate, (five inches by three) obtusely pointed, entire, common, petioles very long, downy. Racemes terminal, simple, flowers of a dull white. Peduncles downy. Legumes, oblong, linear, compressed, smooth. Seeds about six, compressed, of a roundish kidney shape. The ripe legumes fly open with considerable force, and noise, and take a twisted form. It is common in every forest above the *ghats*, is found also along the

banks

banks of the *Ganges*, as low as *Futtehgurh*, where seeds are probably brought by the current, and lodged, not being found in the jungles of the *Dooab*.

Robinia 3. Doubtful.—With strong contorted stem, twenty inches circumference, climbing over the highest trees in the forests about *Hurdwar*, now without leaves (*April*), but loaded with long terminal pendulous racemes of blue and white flowers. Peduncles columnar, downy, proper, one flowered. Legumes long, sub-linear, compressed, pointed with the persisting style, hairy, adhering to the skin when handled, and slightly irritating. Seeds about six, kidney shape, compressed, smooth, varying in colour, size of those of *Ervum-lens.* The parts of fructification agree best with the characters of *Robinia.* The leaves not yet seen.

Pterocarpus —The common tree in the forests, on the skirts of these mountains, delights in a flat, rich soil. Is a timber of extensive use, hard, durable, and handsome, well known in *Hindustan*, under the name of *Seessoon*.

POLYADELPHIA POLYANDRIA.

Hypericum.—An under shrub, of much beauty, on the elevated hills, between *Dosay* and *Bedeyl.* Grows to about three feet high, branches numerous, cylindrical, smooth, all terminated with corymb-like clusters of large yellow pentagynous flowers. Leaves opposite, sessile, oblong, oval, entire, smooth, the large leaves about three and a half inches by one and a half. Capsule five-celled, many seeded : seeds oblong.

SYNGENESIA POLYGAMIA ÆQUALIS.

Prenanthes.—A very pretty half shrubby species, growing out of the hard clay banks of the *Ganges*, near *Hurdwar*, stems numerous and procumbent, very leafy, and marked with the vestiges of fallen

leaves,

leaves. Flowers in corymb-like panicles, terminating the branches, a pretty mixture of white and red, florets five-fold. Leaves without order, petioled, obovate, widely serrated; entire towards the base. Seeds five, crowned with a hairy pappus, seated on the naked receptacle.

On the sides of the mountains between *Dosah* and *Belkate*, a small tree, with black fissured bark, irregular crooked branches. Leaves about the ends of the branches without order, petioled, elliptical, one-nerved, entire, about six inches long, white beneath, with a dense cottony down, smooth above; petioles and peduncles, downy, like the leaves. Flowers in cymes terminating the branches, possessing the following characters. Calyx oblong, formed of about twelve unequal imbricated lance-shape scales, increasing in size from the base, the interior series much longer, erect, and retaining the florets. Corol compound, tubular; corollets hermaphrodite, constantly four equal. Proper, tubular, slender, longer than the calyx; border five-cleft; laciniæ long, linear. Stamens, pist, &c. as in the genus *Cacalia*. Seeds solitary, oblong, attenuated at the base, silky pappus hairy, stiff, erect, the length of the stamens. It comes nearest to the genus *Cacalia*, and to *C. Aselepiadea.*

Leontodon taraxacum.—On the high mountains near *Chichooa.*

Hypochoeris-glabra and *Hypochoeris-radiata.*—On the mountains about *Teyka-ka-Maanda* and *Chichooa.*

SYNGENESIA MONOGAMIA.

Lobelia Kalmii.—On the sides of the mountains near *Dosa.*

Viola-palustris.—On the sides of the mountains between *Adwaanee* and *Teyka-ka-Maanda.*

Impatiens Noli-tangere.—In the bed of the *Koa-nullah*, a showy handsome plant, now in flower.

GYNANDRIA

GYNANDRIA DIANDRIA.

Limodorem.—In the low grounds near *Asoph-gurh,* below *Hurdwar*. Bulbs solid, large, smooth, mostly triangular, the corners pointed, sending forth a few fibres; scape simple, from the middle of the bulb, columnar, smooth; erect, about twelve inches high. Flowers scattered: petals oblong-linear, nearly equal: nectary three-cleft, the middle division much larger, rounded. It resembles *L. Virens* of Doctor ROXBURGH.

Epidendrum 1.—Leaves two ranked, sessile, sheathing the stem, oblong-linear, carinated, ending as if cut off. Racemes axillary, simple, drooping: peduncles as long as the leaves, cylindrical; *proper,* one flowered. Flowers scattered, large white mixed with pink, and very fragrant. Bracts lanced, concave, coloured, one to each proper peduncle. Nectary, horn-shaped, incurvated. It adheres to the stems of trees, by many strong fibres shooting forth from among the leaves. It approaches nearest to *E. furvum.*

Epidendrum 2.—Leaves radical, sessile, lanced, entire, succulent, the interior margin of each leaf, near the base, is split open longitudinally, forming a sheath which receives the edge of the adjoining leaf: leaves seldom exceeding one inch and a half in length: racemes simple, from the centre of the leaves, but little longer, slender, many flowered. Capsule six-angled, broader above. Roots fibrous, numerous, slender, spreading themselves into the fissures of the bark of large trees. The above two species, common both in vallies, and on the tops of mountains.

GYNANDRIA DECANDRIA.

Helicteres Isora.—In great abundance along the skirts of the mountains from *Hurdwar* to *Coadwara,* now in flower, very well known in most bazars under the name *Merowrie,* from the resemblance its contorted capsules bear to a screw, an *Hinduwee* name for that instrument.

GYNANDRIA POLYANDRIA.

Grewia 1.——With leaves alternate, short petioled, three nerved, ovate, much pointed, serrated, harsh to the touch. Calyx, five-leaved: leaves lance-linear, nerved, spreading. The petals resemble the leaves of the calyx, but are smaller. Filaments numerous, germ roundish, obtusely four cornered, villous. Stigma headed, depressed, five lobed, or cleft. The flowers are of a greenish white, mostly in threes on one common peduncle; peduncles solitary, and opposed to the leaves. Grows to a small tree, numerous on the islands of the *Ganges* near *Hurdwar*.

Grewia 2.—Leaves alternate, petioled, three nerved, ovate, serrated, tomentose, more so beneath than above, white, and resembling the feel of velvet: petioles very short, downy: peduncles axillary, crowded, short, trichotomous, downy. The flowers are much smaller than in the preceding species, and of an orange yellow; the calyxes covered with the same velvet-like nap, the germ thickly enveloped therein, and the younger branches also covered with it. This grows to a large tree in the mountains about *Amsore*. Fruit not seen.

Pothos.—With large hearted petioled leaves, entire, without nerves, smooth. Petioles long, carinated, sheathing the stem. Flowers not seen; the large cylindrical spadix now crowded with ripe seeds, of an irregular ovate shape, about the size of a common pea, covered with a soft aril of a deep red, numerous, and affixed to a common receptacle, the whole externally defended by a thick capsular covering, internally, marked with as many cells as seeds, externally, with numerous reticulated lines, and minutely dotted. On handling the broken pieces of this covering, many shining needle-like points penetrate the skin, and produce irritation. The stems slender, jointed, sending forth fibres, which spread on the bodies of those trees over which they climb. The natives call it

Haat-phool,

MONOECIA TRIANDRIA.

Haat-phool, from the irritation excited on incautiously handling it. It seems to be *Adpendix-porcellanica* of RUMPHIUS.

Phyllanthus grandifolia.—Now in flower on the sides of the mountains near *Bedeyl.*

MONOECIA TETRANDRIA.

Betula.—Leaves alternate, petioled, ovate, obtuse, obscurely serrated. Peduncles axillary, aments fessile, conical, about the size of a small nutmeg, the dry aments the only part of the fructification seen. Grows to a pretty large tree, the bark is an article of trade into the plains of *Hindustan,* said to be used by the manufacturers of chintz to dye red, known by the name of *Attcess.* Saw several trees between *Dosah* and *Belkate.*

Cicca disticha.—*Averrhoa acida,* LIN. Syst. ed. XIII, 357.—*Terme,* GÆRTN. 2. 487. t. 180.—*Phyllanthus,* ROX.—A forest tree in the vallies of these mountains, now in flower, grows to a considerable size.

Morus 1.—Leaves alternate, petioled, oblong, ovate, widely and unequally serrated, acuminated, rough, three nerved, about four and a half inches long. Petiole one and a half inch, channelled. Peduncles axillary, solitary, short, hairy. Aments, cylindrical, short, dense, florets all female. Grows to a small tree in the jungles about *Dosah.*

Morus 2.—Leaves alternate, petioled, ovate, pointed, a little hearted at the base, from three to five lobed, unequally serrated, teeth obtuse, scabrous, about two and a half inches, and petiole three quarters of an inch. Peduncles fascicled axillary, aments diffuse, florets peduncled, all male. Grows to a small tree in the forests near *Coadwara.*

Morus 3.—Leaves alternate, petioled, ovate, somewhat hearted, acuminated, widely and unequally serrated, downy on both sides, and rough to the touch, six inches long, petiole one inch, channelled.

nelled. Peduncles axillary, solitary, short: aments cylindrical, dense, short, both male and female. The fruit when ripe about the size of the first joint of the middle finger, of a deep red, approaching to black; insipidly sweet, and mucilaginous. Grows to a tall tree with spreading head, found near the village of *Nataana*.

MONOECIA POLYANDRIA.

Quercus.—Leaves alternate, petioled, ovate-lance, serrated, teeth distant and rigid, smooth and shining above, hoary, with a dense down beneath, one nerved, from which are fourteen or fifteen pairs of parallel veins. The full grown acorns now on the trees, consequently flower in the coldest time of the year, and we may conclude from its situation here, it would bear the climate of *Britain*. The thickest forests are in the neighbourhood of *Adwaanee*; the trees rather low, but have the appearance of age, though none exceeded in circumference twelve feet, and fifty in height. The wood is of a reddish brown, very hard, and for this property refused by the natives for any purpose but firewood.

Juglans.—Three or four trees in the neighbourhood of *Nataana*, the fruit yet small, covered with a dense hair. Leaves pinnated with an odd one: leaflets sessile, lance-oblong, entire, smooth, the lower pair least, each pair increasing in size upwards. Growing on the sides of the mountains in a very stony soil.

Carpinus doubtful.—A low ill formed tree on the sides of the mountains, between *Dosa* and *Belkate*. Leaves without order about the ends of the branches, pinnated: leaflets about four pair, broad ovate, very obtuse, entire, beneath downy: common petiole columnar, downy, at its origin gibbous: proper, very short, cylindrical, downy. Flowers on long amentaceous spikes, crowded, but not imbricated, those bearing the female flower longest. Calyx of the male flowers is formed of six

spreading unequal leaves, the middle one many times longer than the rest, one nerved, veiny. Corol none. Filaments from seven to eleven, scarcely evident, inserted within the leaves of the calyx. Anthers oblong, four cornered, thick, hairy, erect.——Female, Calyx one leaved, three parted, resembling a ternate leaf, with sessile leaflets, the divisions unequal, the middle one much the longest, oblong, rounded above, one nerved, veined. The only appearance of corol, are four oblong scales, seated on the germ, round the foot of the style, spreading, equal. Germ globular, a little pointed above, hairy. Style short, thick, cylindrical: stigmas two, about the length of the style, thick, slightly compressed, hairy. Pericarp, capsule, globular, two-celled, hairy. This has not been seen in its perfect state.

MONOECIA MONADELPHIA.

Pinus tæda.—Between *Ghinouly and Sirinagur*, several mountains are seen covered with this species of fir, the tallest appeared to be from sixty to seventy feet in length; one, which had fallen, measured sixty-five feet, and in circumference seven feet and a half. The natives prefer it to most other wood, for building, and many other uses, for the convenience with which they work on it, with their bad tools. It is also used for the purpose the trivial name implies, and is the only light they employ in their copper and lead mines. The means of transporting this useful timber from the situations it is found in, to the plains of *Hindustan*, appear too difficult and expensive, to offer any encouragement for such an attempt.

DIOECIA DIANDRIA.

Salix.—Leaves alternate, petioled, lanced, acuminated, unequally serrated, smooth, white beneath. Stipules lateral, semicordate, large, serrated, paired. It flowers in *November*, and in a considerable num-

 ber

ber of willows, all produced from the same source, none but male plants have been found, and the flowers hexandrous. They grow in plenty on the banks of the *Ganges* above and below *Hurdwar*, acquire the height of forty feet, in circumference seldom exceeding thirty inches. The wood is white, and very fragile.

DIOECIA PENTANDRIA.

Xanthoxylon.—A small thorny bushy tree, growing on the sides of the mountains, about *Nataana*, and other places. Leaves unequally pinnated; leaflets sessile, from three to six pairs, the lower pair smallest, increasing upwards, the terminal one being the largest, oblong-lance, obscurely and distantly serrated, dotted, smooth, largest about three inches long and one broad, between each pair of leaflets, a solitary streight rigid prickle. Petiole winged, along the middle prominent. Flowers inconspicuous; on short, axillary, compound, racemes (both on male and female plants). The short bunches of fruit ripen in *May*, the capsule about the size and shape of a small pepper-corn, these and every part of the plant, possess an aromatic and durable pungency. The natives scour their teeth with the young branches; and chew the capsules as a remedy for the tooth-ach. They believe that the capsule, with the seeds bruised, being thrown into water, renders it fit for drinking, by correcting any noxious quality which it may have. The branches cut into walking sticks, with their thorns rounded off, have a formidable appearance, and may properly be called *Herculean* clubs. It differs much from the figure in CATESBY's *Carolina.*

Cannabis Sativa.—This plant is cultivated in several parts of the mountains, for two purposes: one for the manufacture of a coarse thick cloth, which the poorer people wear, and the other in making an intoxicating drug. Much used, mixed with tobacco, in smoking, by the people of many parts

of

of *Hindustan*, and is an article of traffic, between the inhabitants of this range of mountains to the eastward, and the natives of the low countries.

DIOECIA DODECANDRIA.

In a shaded valley near *Ghinouly*, a tall, slender, straggling tree, now in flower, the fructification too complicated for abbreviated description, or comparison with other genera, therefore the full characters are here given. Branches alternate, straggling, few. Leaves alternate, towards the extremities of the branches, petioled, ovate, entire, smooth above, slightly downy beneath, about nine inches in length. Petioles very short, columnar. The flowers are axillary, produced in a kind of single umbell, three or more from the same axill. Common peduncles cylindrical, about half an inch in length, downy; *partial*, similar, a little shorter; *proper*, still shorter, about two lines in length.

Characters of the male flowers. Calyx universal involucre, five-parted (perhaps five-leaved): divisions rounded, concave, expanding; *partial*, of similar form, carrying six florets in its base; proper perianth six-parted, divisions lance-ovate, hairy, expanding, sometimes reflected. Corol none. Stamens, filaments mostly thirteen, filiform, unequal in length, hairy, inserted into the base of the calyx, the seven shortest or interior series, furnished towards the foot of each, with a pair of compressed kidney shaped glands, inserted singly by a minute thread into the sides of the filament; the six exterior or longest, simple. Anthers oblong, four-celled, two of which are lateral, and two near the apex in front, each furnished with a lid, which on the exclusion of the pollen are forced up and shew the cells distinct.

Female—Calyx, universal and partial involucre as in the male. Proper perianth, five or six cleft, less hairy.

hairy, more coloured than in the male, the laciniæ of the border, small, ovate, thin, withering. Corol none, unless the coloured perianth is so called. Nectaries, six pair of glands resembling those of the male flower, affixed in the same manner, to six short, hairy filaments, with the addition of a linear hairy scale, or filament at the back of each, but distinct, all inserted into the base of the calyx. Pistil, germ above, roundish, ovate. Style cylindrical, obscurely furrowed down the middle; stigma two-parted, spreading. Pericarp, a berry, at present about the size of an orange seed, ovate, one-celled, one-seeded.

N. B. Sometimes the glands in the male flowers are one less, the same number of filaments, however, remain (13). The partial involucre is sometimes found with five florets only in its base, the num- of its divisions in that case was one less, viz. four. The flowers of the male plant are larger and more numerous. The natives distinguished the male and female trees by different names, the former they called *Kutmoreea*, and the latter *Pup-reea*. It is found also in the forests near *Coadwara*, below the *ghat*.

POLYGAMIA MONOECIA.

Terminalia, Alata-glabra.—Grows to a very lofty tree in the vallies of these mountains. Stem straight, and clear from branches to a great height. The characters given to the genus *Chuncoa*, in GMELIN's edition of the *Systema Naturæ*, agree well with this plant.

Mimosa Catechu 1.——In great abundance in the forests of these mountains, and islands of the *Ganges* near *Hurdwar*, now destitute of foliage, a shabby thorny tree, the dry legumes hanging in great abundance; flowers during the rainy season.

Mimosa 2.—A large tree bearing great resemblance to *Mimosa lebbeck*, now in flower in the forest near *Coadwara*. Leaves twice pinnated, abruptly, from

from ten to twelve paired; leaflets sessile, from thirty-two to thirty-four pair, halved longitudinally, oblong, about three-eighths of an inch long by one-eighth, downy. Petioles and peduncles downy, one globular gland on each common petiole, an inch below the leaves, and another similar, but smaller, between the terminating pair of leaflets. Stipules lateral, paired, ovate, acuminated, one nerved, veiny, downy, large. Those on the peduncles resemble them, and are perhaps bracts. The flowers resemble those of *M. lebbeck.* It comes nearest to *M. arborea.*

POLYGAMIA TRIOECIA.

Ficus-laminosa.—An humble species, growing among detached rocks in a small water course, and other moist places along the valley of the *Kōa-nullah.* The stem is procumbent, shrubby, diffuse. Leaves opposite, lanceolate, entire; fruit laminous. The natives collect the leaves to feed their cattle with, and call it *Chancherree.*

Ficus 2.----A slender bushy kind, in dry elevated situations, near *Dosa.* Leaves alternate, on short hairy petioles, ovate, pointed, entire, thickish; with prominent reticulated veins. Peduncles axillary, solitary, cylindrical, short, hairy; fruit globular, about the size of a marrow-fat pea, downy. Calyx beneath, three parted, downy; it bears some resemblance to *F. pūmila.*

Ficus 3.----Growing in the same situation with the above, a stronger bush. Leaves alternate, few, distant, oblong; sometimes much rounded above, but acuminated entire, rough, three nerved, with distant veins running into each other along the margin of the leaf: petioles very short, hairy. Fruit axillary, solitary, sessile, rough, globular, about the size of a small gooseberry. Comes nearest to *F. Microcarpa.*

Ficus 4.—A large tree in the forests along the *Koa-nullah,* though on elevated situations. Leaves ovate, obtuse, entire, large, downy. Peduncles variably

variably produced from the stem and branches, crowded, cylindrical, short, downy. Fruit globular, as large as a small pullet's egg, when ripe, eatable, of a yellowish green, mixed with red, not very desirable to the taste of an *European*, but by the natives esteemed a good fruit. Called by them *Timla*.

CRYPTOGAMIA FILICES.

Asplenium.—Growing on the bodies of trees covered with moss. Frond simple, lance-linear, narrow, attenuated at both ends, smooth, entire: the fructification in distinct distant, round, parcels along the margin, and over which, when mature, the sides of the frond are reflected, the whole contorting and resembling a worm.

Polypodium.—Growing in similar situations with the above. Frond simple, lance-linear, acuminated, entire, woolly. The fructification covering the whole of the disk, except at the two extremities; the opposite side smooth and pitted. Roots, fibrous, numerous, capillary.

Adianthum Serrulatum.—Frond composite, leaves longitudinally striated. Found on the sides of every hill.

Marattia alata and *laevis.*—These two beautiful ferns are mostly found together, in moist and shaded situations, particularly on the more elevated part of the mountains about *Adwaanee* and *Nataana*.

Among many plants observed, whose place in the system, for want of particular parts of the fructification, could not be ascertained, the following may deserve noticing here.

Ká-iy-p,hul, country name, GLADWIN'S *Mat. Med.*—This is a middle sized tree, indigenous to these mountains, the bark of which is much valued in *Hindustan* for its aromatic and medicinal properties, and sold in every bazar under this name. The fruit

fruit is a drupe, about the size of a small nutmeg, of a round oval, the nut bony, furrowed, one celled, one seeded, covered with a thin pulp, with a carbuncled surface, red when ripe, and very agreeable to the taste, highly esteemed by the natives. The branches are opposite, cylindrical, much marked with the vestiges of fallen leaves. Leaves irregularly opposite, rather crowded about the extremities of the branches, petioled, ovate, pointed, sometimes elliptical, entire, smooth: petioles short, channelled. Flowers, according to information from the natives, in the month of *March*. It would probably bear the climate of *Britain*.

No name.—In the neighbourhood of *Hurdwar*, a large spreading tree, without foliage, or flowers, the full pericarps hanging in many clusters, consisting of five inflated large kidney-shape capsules, united at one end to the apex of a short woody peduncle, pointed at the other, the points inclined inwards, each capsule in size, &c. resembling the follicle of *Asclepias-gigantea*, downy, one-celled, with a dorsal suture the whole length. Seeds from six to eight, ovate, about the size of a citron seed, black, covered with a white mealy substance, attached by one end to the edges of the suture. Some appearances warrant the conclusion it is a species of *Sterculia*. From the body of the tree exudes a white pellucid gum, discovering similar properties to the gum taken from *Sterculia-platanifolia*, and which so much resembles gum *tragacanth*, that it has been collected and sold, on the supposition of being such. Whether it will stand the test and be received as such in *Europe*, time will show. The plant producing that genuine gum, is not found on this side of *India*, to the best of my information.

TO SIR JOHN SHORE, Bart.

PRESIDENT OF THE ASIATIC SOCIETY.

Dear Sir,

WITH this, I take the liberty of sending you an account of the excavations near the town of *Ellora*, differing somewhat from the paper formerly submitted to you, but still requiring all the indulgence then claimed, for the disadvantages under which it was written. Some drawings and a plan accompany it, that will, I hope, prove illustrative of the description. For the plan and the measurements, I am indebted to Lieutenant James Manley, and have entire reliance on their accuracy.

The drawings were taken by a very ingenious native in my service, named Gungaram, whom I sent to *Ellora* for that purpose, previous to going thither myself, when he was unfortunately too much indisposed to attend me; so that the opportunity of correcting what was done, substituting more eligible points of view, or adding to my collection, was lost; and I am reduced to the alternative of sending them, with all their numerous errors and imperfections, or sacrificing, to my conviction of those imperfections, the desire of conveying to you, agreeably to promise, some idea, however inadequate, of works, concerning which it has been, and still is, rather my wish to excite, than my hope to gratify, curiosity. That arduous task, I shall leave to the fine taste, masterly pencil, and laudable industry, of Mr. Wales, an artist, mentioned in a former letter, who has already made great progress in such a collection of these wonderful antiquities, many of them hitherto unheard of by *Europeans*, and first discovered by his enquiries, as with the addition of those of *Ellora*, which he means to visit,

visit, will at once engage and satisfy the expectations of the learned and the curious.

Under these circumstances, I no longer hesitate to submit the drawings, with all their errors and inaccuracies, to your notice and disposal, thinking it necessary, at the same time, to acquaint you, that as my draftsman will attend Mr. WALES in his intended journey to *Ellora*, he will be enabled, by the liberal instructions of that gentleman, to correct his errors of delineation and perspective; and as it is reasonable to suppose that most of Mr. WALES's own views will be from different points, I hope this prospect of being furnished with a new set of those now sent will regulate you as to any present public use of them, unless for the purpose above mentioned, of awakening curiosity to the produce of Mr. WALES's skill and industry.

My enquiries, as to the origin or date of these wonderful works, have not hitherto been satisfactory. Doubtless, however, it is, that they are the works of people, whose religion and mythology were purely *Hindu*, and most of the excavations carry strong marks of dedication to MAHDEW, as the presiding deity. The fanciful analogies of some travellers (particularly that attributed to the eight handed figure of VEER BUDDUR, holding up raja DUTZ in one hand, and a drawn sword in another, with the famous judgment of SOLOMON) now vanish; and we seek no longer for colonies of *Jews*, *Egyptians*, *Ethiopians*, or *Phenecians*, to supercede the more rational mode of accounting for such works in the enthusiastic labour and ingenuity of the natives of the country; by which means, the wonder is at least simplified, no trifling point to minds in quest of, and in love with truth.

The difference of the inscriptions, in some of the caves, from the present known characters of *Hindustan*,

may

may be objected to their being the produce of *Hindu* artists; but it is well known, that the formation of letters undergoes great changes in the course of ages, and that such may be the case, with respect to the excavations on this side of *India*, may be fairly inferred, from the difficulty with which the ingenious Mr. CHARLES WILKINS traced and recovered, as I have been informed, some inscriptions in the neighbourhood of *Ghya*. But I am inclined to think, that we are not sufficiently acquainted with the characters of the south of *India*, such as the *Tumbole*, *Arvee*, *Kinaraa*, and *Telinghee*, to pronounce on their affinity to those in the excavations, which will be fully submitted to the scrutiny of the learned in Mr. WALES's intended work.

Though I have above mentioned my persuasion, that the generality of the excavations I have seen, not only at *Ellora*, but elsewhere, are dedicated to MAHDEW; yet I do not mean thereby to abandon an idea, that the most northerly caves of *Ellora*, occupied by the naked sitting and standing figures, are the works of the *Sewras* or *Juttees*, who, by the *Brahmens*, are esteemed schismatics, and whose sect, called *Srawuk*, is very numerous in *Guzerat*. The tenets, observances, and habit, of the *Sewras* are peculiar, and in many points very different from other *Hindus*. Their adoration of the deity is conveyed through the mediation of ADNAUT and PARISNAUT, the visible objects of their worship, personified as a naked man sitting or standing. This sect is supposed to be of a comparatively modern origin, if so, and the foregoing hypothesis of the dedication of the temples to their idol, be admitted, the limit of their possible antiquity follows, but without ascertaining, or affecting, that of the others.

On this very interesting point, I mean the antiquity of these astonishing works, I shall here trouble you with the different accounts of two intelligent

men,

men, one a *Mahommedan* the other a *Hindu*. The first, named MEER ALA KHAN, an inhabitant of *Ahmednugger*, who said that he had heard it from a person of acknowledged erudition, but whose name I forgot. The second, a *Brahmen*, inhabitant of *Roza*, who quoted a book entitled *Sewa Lye Mahat*, or the grandeur of the mansion of SEWA, i. e. MAHDEW, as his authority; for the authenticity of which I have hitherto sought in vain.

The *Mahommedan* says, "the town of *Ellora* was "built by rajah EEL, who also excavated the tem-"ples, and being pleased with them, formed the "fortress of *Deoghire (Doulutabad)*, which is a "curious compound of excavation, scarping, and "building, by which the mountains were converted "into a fort, resembling, as some say, the insulated "temple in the area of the INDUR *Subba*. EEL rajah "was contemporary with SHAH MOMIN ARIF, who "lived 900 years ago."

The *Brahmen* on the other hand, says, "That the "excavations of *Ellora* are 7894 years old, formed "by EELOO rajah, the son of PESHPONT of *Elich-"pore*, when 3000 years of the *Dwarpa Yoag* were "unaccomplished, which added to 4894 of the pre-"sent *Kal Yoag*, makes 7894. EELOO rajah's body "was afflicted with maggots, and in quest of cure, "he came to the famous purifying water named *Sewa "Lye*, or, as it is commonly called *Sewalla*, that had "been curtailed by VISHNU (at the instigation of "YEMDURHUM, or JUM, the destroying agent) from "sixty bows length (each four cuvits square), to the "size of a cow's hoof. In this water, EELOO dipped "a cloth, and cleansed with it his face and hands, "which cleared him of the maggots. He then built "*Koond* (or cistern) and bathing therein, his whole "body was purified; so that, looking on the place "as holy, he first constructed the temple called "*Keylmas*, &c. to the place of *Biskurma*."

This wide difference in the era between the *Hindu* and the *Mahommedan*, must remain, I fear, inexplicable; while our attention is necessarily attracted to their agreeing in the person of EEL EEA, or EELOO rajah, as the author of the excavations, whose being identified as living in the same age with a well known character, seems to throw the weight of probability into the *Mahommedan*'s scale; and it must be remarked, that however fond the writers of that faith may be of the marvellous, in points of preternatural agency, according to their own system; yet, as annalists, they seem more entitled to credit than the *Hindus*, whose historical and theological chronology, is greatly mixed with, and obscured by, fable.

The *Koond*, or cistern, mentioned by the *Brahmens*, is extant, and in perfect preservation, just without the town of *Ellora*, and the holiness of its water is still in such high estimation as to render it a *Teerut* (pilgrimage) of great reputation and resort, under the appellation of *Sewalla Teeruit*, or *Koond*. The neighbouring temples probably form a part of the attraction, as they are much frequented by devout *Hindus*.

It is necessary to observe, that there are a great many other excavations in the semicircular mountain that commands a view of the fine valley of *Ellora*, which, indisposition prevented my visiting.

Whether we consider the design, or contemplate the execution, of these extraordinary works, we are lost in wonder at the idea of forming a vast mountain into almost eternal mansions. The mythological symbols and figures throughout the whole, leave no room to doubt their owing their existence to religious zeal, the most powerful and most universal agitator of the human mind.

The

X.

DESCRIPTION *of the* CAVES *or* EXCAVATIONS, *on the mountain, about a mile to the eastward of the town of Ellore, or, as called on the spot,* VERROOL, *though therein there appears inaccuracy, as the foundation of the town is attributed to* YELLOO, *or* ELLOO *rajah, whose capital is said to have been* ELLICHPORE.

I SHALL begin this description from the northernmost caves, and continue it in the order as they are situated in the mountain, which runs in a small degree of circular direction from N. 25 W. to S. 25 E.

JUGNATH SUBBA, *Plate* A. *Front* S. 15 E.

This is a fine excavation that fronts the entrance of the area, having, on the left side *Adnaut Subba*, and on the right some other small excavations almost choked up, as is also the lower story, scarce so much of it appearing as is represented in the plate. The ascent to the upper story is by a flight of steps, in the right corner of this excavation, the inside of which is in very fine preservation, many parts of the ceiling, pillars, &c. having the coat of lime, with which the marks of the chisel have been concealed, and which has been curiously painted, still adhering to the stone. An idea of the front of this fine cave is tolerably conveyed in the etching. Opposite to the front of the cave is a large figure sitting cross-legged, with his hands in his lap, one over the other, which the *Brahmen* who attended me called JUGNATH; his two attendants, he called JAY and BIDJEE*. On each

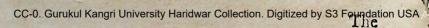
* In the *Hindu* mythology, JAY and BIDJEE, or WIJEE, are the porters or door-keepers of VISHNU.

side of the entrance of the recess are two standing figures, whom he called SUD and BUD. The whole room, except the open front, has the same figures as that in the recess; but of a smaller size. They all appear to be naked, and to have no other covering on the head than curled hair. The *Brahmen* who shews the caves has a legend that they were fabricated by BISKURMA*, the carpenter of RAMCHUNDER who caused a night of six months, in which he was to connect these excavations with the extraordinary hill and fort of *Doulutabad*, or *Deoghire*, about four coss distant; but that the cock crowing, his work was left unfinished, and the divine artist took the *Outar* of BODE. In the left hand side of this fine cave, there is a coarse niche that opens into the *Adnaut Subba* below. This cave consists of two oblong squares, the inner one being formed by twelve pillars, the four at each end differing from those in the centre.

Dimensions of *Jugnath Subba*.

	Feet.	Inches.
Width of the cut through the rock at the entrance, - - -	35	
Height of the principal figure, sitting,	4	2
Whole length of the cave, - -	57	
Length of the inner square from the base of the pillars, - - -	34	
Breadth of the whole cave, -	47	7
Ditto of the inner ditto, - -	20	
Ditto to the plain work of the recess, -	56	7
Circumference of the shaft of one of the four middle pillars, - -	9	7½
One side of the base of ditto, - -	4	9
From the base to the capital, -	10	2
From ditto to the stone beam, - -	11	4
From the floor to the ceiling, -	13	4½

* VISWA, or WISMA KURMA, creator or maker of the world.

The

The ceiling has been very handsomely painted in circles, many parts of which, and the border, consisting of figures, are entire, both of men and women, the former of which are generally bare-headed, with short drawers or *Cholnas*, the women with only the lower parts covered. There is no inscription in the cave. There are groups of dancers and singers, with the same instruments as are now in use. Some of the painted figures have highly ornamented head dresses, like *Tiaras*; but it seems an argument against the antiquity of the painting, that much of the fine sculpture and fluting of the pillars are covered by it, which, it may be supposed, would not have been done by the original artist.

ADNAUT SUBBA.

Is on the left hand entrance of the *Jugnath Subba*, as represented in the Plate A. The entrance of this excavation is unfinished, and above the entrance has the figures of LUCHMEE NARRAIN with two attendants, much injured by time and weather. At the extremity of the cave, opposite the entrance, is seated the idol ADNAUT; and from the left, there is an opening into another cave, of smaller dimensions, but infinitely better work; that is now so much choked with earth, as to have left scarce more than the capitals of the pillars above the ground. These capitals are very handsomely finished in the style of the front ones of *Jugnath Subba*.

Dimensions of the cave of ADNAUT.

	Feet.	Inches.
Height of the figure, sitting, -	4	2
From the entrance to the figure in a recess,	45	
From the entrance to the plane of the opposite wall, - - -	34	6
From side to side, - - -	28	6
Height of the ceiling, - -	9	4
Square of a pillar being plain (figures in the sides of some), - - -	2	11

	Feet.	Inches.
Height of a pillar to the commencement of the capital, - - - -	6	11
Ditto of ditto to the appearance of a stone beam, - - - - -	7	10
Ditto of the rock at the front of the cave on the outside of the entrance, -	27	

INDUR SUBBA. *Front South.* B.

You enter this magnificent cave, or assemblage of caves, by a handsome gateway cut from the rock, on which are too lions couchant. There is a small cave much choked, before the gateway on the right hand. From the doorway, you enter an area, in which stands a pagoda, or temple (C) of a pyramidal form, in which is placed a kind of square altar, with figures on each side, of the same kind as in the last *Subba.* This temple is elaborately finished with sculpture, and a mass of sculptured rock serves as the gate, left and fashioned, when the avenue to the inner apartments was cut through the stony mountain.

In the same area, on the left hand side, is a very handsome obelisk, (C) the capital of which is beautified with a group of sitting human figures that are loosened from the mass. The obelisk is fluted and ornamented with great taste, and has a very light appearance.

On the right hand side of the area, is an elephant but without rider or *Hoda.*

On the left hand side of the same area, is an excavation, with a figure, like the preceding ones, in the recess opposite the entrance. In this there are also the remains of painting on the ceiling, &c. with abundance of sculptured figures on the sides within, and without of elephants, lions, &c. On the right hand side, the excavations are imperfect above and below.

below. After passing the same temple in the area, you come to the entrance of the lower story of this *Subba*, which is in a very unfinished state, but has a figure in the recess opposite the entrance like the former.

From this lower story, you ascend to the upper by a flight of steps, on the right hand side, fronting the top of which, is a gigantic figure of INDUR, (Plate D. No. 1.) with a *tiara* on his head, a *janoee* or *Brahmen* string, over his left shoulder, sitting on an elephant couched. Opposite to him is INDRANEE (No. 2) his consort, seated under a mango tree, on a lion. At the end of this cave is a recess with the same figure as in the former, who seems to be the presiding idol in the caves yet seen. This room is formed into two nearly square divisions by twelve pillars. In the middle of the inner square is an altar.

There is a redundance of figures in this fine cave, so as to preclude particular description, and leaves me at a loss whether most to admire the minuteness of the parts or the beauty of the whole. The latter will be better understood from the measurement. The etchings will give a faint idea of the former.

	Feet.	Inches.
Base of the obelisk (N. B. it is much decayed), - - -	4	2
Height of the excavation of the area,	39	
Depth of area, - - -	54	
Breadth of ditto, - - -	44	
Gateway high, - -	8	
Ditto broad, - -	6	
Temple, square, - -	18	
Ditto height, - -	27	
Obelisk, - - -	22	
Ditto with the figures at the top,	24½	

Circumference

	Feet.	Inches.
Circumference of the obelisk, -	12	
Elephant, long, - - -	13	5
Ditto, high at the shoulder, -	9	
Left hand cave in the area, deep with niche, - - -	32	
Ditto ditto, ditto, without niche, - -	26	
Ditto ditto, ditto, breadth, - - - -	27	
Ditto ditto ditto height, - - -	12	
Another small cave on the same side, deep, - - - -	15	8
Ditto ditto broad,	8	
Ditto ditto high,	7	
Lower story, deep, from the entrance to the door of the recess, - -	79	
Ditto breadth, - -	38	4
Ditto height of ceiling, - -	14	
Ditto square of pillars, being plain,	4	
Upper story, deep, from the figure in the recess to the opposite veranda, -	78	
Ditto from the plane of the two walls,	66	
Ditto breadth, - - -	66	9
Ditto height of the ceiling, -	14	
Ditto principal figure in the recess, sitting, - - -	5	1

PURSARAM SUBBA.

On the left hand side of the upper story of the *Indur Subba*, there is a passage into this *Subba*, which though smaller than any of the foregoing, is exactly alike, and equal to them in the fabrick and preservation of its work. There is a passage from it into the upper story of *Jugnath Subba*, already described, which will explain the contiguity of these three caves.

Dimensions

Dimensions of *Pursaram Subba.*

	Feet.	Inches.
Depth from the front to the figure in the recess, - - -	36	
Ditto from the plane of each wall,	30	8
Breadth, - - -	25	6
Height of figure in the recess, sitting,	3	3
Ditto of ceiling, - -	8	10
Square of pillars at the base, -	2	3

DOOMAR LEYNA, W. 15 S. distance from the last about ¼ mile.

The entrance to this stupendous excavation is through a cut, or lane, in the solid rocky mountain. On the left hand side of this lane, is a cave that is near choked up with earth. The lane terminates from without at a doorway, through which you enter an area, at the end of which, opposite the door, is a small cave. On the right hand of the area is the great excavation, having at its entrance, two lions couchant, one of which has lost its head. You enter this cave by a kind of veranda, on the left hand side of which is a gigantic sitting figure of DURMA rajah, with a club in his hand, and a *jinoee* over his shoulder. On the right hand WISWEYSHWUR MAHDEW, in a dancing attitude, with a group of figures round him, among which is the bull *Nundee.*

After passing this veranda, the cave widens very considerably, and still more after passing the next section of pillars, till you come to the centre or fourth section, on the left of which is the centre door of a very fine square temple, on the right entrance of which is a fine standing figure of MUN, a *tiara* on his head, a *jinoee* on his shoulder, and BOUANNEE standing by him, with two small figures above. On the left hand is exactly the same group, said to be POUAN and LUCHME. On the side facing the alley, are similar groups, said to be CHUND and his wife SUCKABYHE on the right, and PRICHUND

and

and his son GOVINDA on the left. The same groups appear on the back part of the temple which has four doors) near the wall, under the names of *Sunk* and *Mahsunk*; and on the remaining side, under the names of *Sid* and *Rid*; but I place not much faith in these accounts of the *Brahmen* who explained them to me. After passing the four sections of pillars, one end of which is occupied by this temple, the remaining two decrease in the same order as at the entrance by the alley. It should not be forgotten that the temple above described is completely occupied by the altar and *Ling* of MAHDEW. Opposite to this temple, and to the right as you enter by the alley, there is a fine open entrance, leading directly up to a square temple. On the right hand side of this grand entry, is a group (Plate E.) of MAHDEW and PURWUTTEE, supported with their heavenly suite, by ROUON. On the left side is VEER BUDDER with eight hands. In one is suspended the slain rajah DUTZ. The other wields a sword, striking the elephant *Erawuttee* on the head. Two support a canopy. One has transfixed DYTASEER with a spear. One holds a snake. One a vessel to receive the blood of the slain DYTASEER; and one is broken, but which originally held the bottom of the spear, with which DYTASEER is transfixed. LUCHME is sitting beneath him.

The end opposite the entrance by the alley, and which exactly resembles it, has a small area descending a great depth by steps to a pool of water, supplied by a cascade that falls during the rainy season from the whole height of the mountain. Over the staircase is a small gallery, meant seemingly to sit and observe the falling stream.

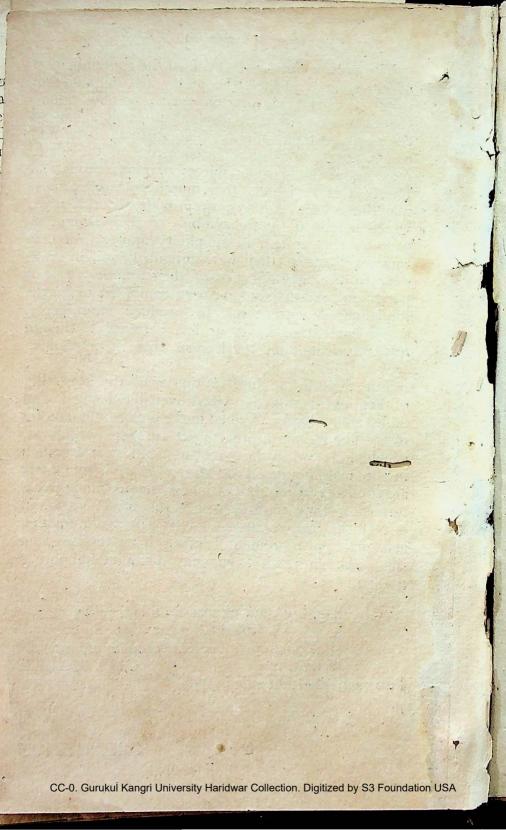
On the right hand side, as you enter from this avenue, there is a group of a standing woman and seven smaller figures. The left hand has nothing. On entering the first section of pillars, there is, on the right

 hand,

The ancient *Brahmens*, avoided the contamination of cities, and affected the purity and simplicity of rural retirement; when far removed from observation, the imagination of their disciples probably enhanced the merits of their sanctity. To alleviate austerities, and to gratify the devout propensities of these holy men, naturally became objects of pious emulation. Under this influence, the munificence of princes may have been engaged to provide them retreats, which sanctified by the symbols of their adoration, were at once suited, in simplicity and seclusion, to those, for whom they were intended, and in grandeur to the magnificence of their founders. Thus power and wealth may have been combined, under the guidance of enthusiasm, to produce monuments, scarce less extraordinary or less permanent, though less conspicuous and less known, than the pyramids.

But though the high antiquity of the generality of these excavations is incontrovertible, being lost in fable, and vulgarly ascribed to the preternatural power of the five *Pandoo* brothers; yet are there exceptions, of which I saw an instance in a hill near a garden in the neighbourhood of *Aurungabad*, where there are two excavations, but of inconsiderable dimensions, formed, as I was credibly assured, by raja PAUR SING, one of the *Rajpoot Ameers* of AURINGZEBE's court, as a place of retirement, during his attendance on that monarch in his excursions to the neighbouring garden.

Begging your excuse for this trouble,
I remain, dear Sir,
Your most obedient humble servant,
C. W. MALET.

POONAH, 22d *December*, 1794.

hand, a representation of the nuptials of GOURA MAHDEW) and PARWUTTEE, with a great number of figures above, Rajah DUTZ and ALIA, PARWUTTEE'S father and mother on one side, and BRIMHA, in a sitting posture, performing the marriage ceremony, with VISHNU standing behind him. In front of this group are the circles cut in the floor for performing the *Ludcha Home*, or nuptial sacrifices. On the left hand side is another group of MAHDEW and PARWUTTEE, with the bull *Nundee*,

There are, as in the other, the remains of painting in this cave, but principally on the ceiling. The heads of the figures in this cave are generally adorned with highly decorated *tiaras*. The thighs of some of the men have *cholnas*, but I cannot discriminate any other parts of their drapery.

Dimensions of *Doomar Leyna.*

		Feet.	Inches.
The cut, or alley, through the rock from the beginning to the door of the cave,		100	
The breadth of ditto, - -		8	
Height of the rock through which the cut is made at the entrance, -		31	
Ditto ditto in the area, - -		61	6
Cave on the left hand side of the alley, nearly choked, in length, -		66	
Depth of the said cave, - -		26	
Height remaining unchoked, -		6	
Door at the entrance of the area,	height,	11	6
Ditto,	breadth,	4	4
Area	length,	51	4
Ditto	breadth,	26	
Cave, opposite the door	length,	28	6
Ditto	breadth,	17	3
Height partly filled up, remaining,		10	6
Square of the pillars, - -		2	$4\frac{1}{2}$

Breadth

	Feet.	Inches.
Breadth of the first section of pillars on entering the great cave, from wall to wall, - - -	51	6
Ditto of the second ditto, -	90	3
Ditto of the third, fourth, and fifth ditto,	135	1½
The two remaining the same as the two first.		
The depth from the ingress at the alley to the egress at the tank, -	135	10
The square of the temple occupying the left hand side as you enter from the alley, - - -	30	7
Height from the floor to the ceiling,	16	10
Square of the pillars at the base, generally,	4	3
Height from the highest figures, being those on the four sides of the temple,	13	6
Breadth of the southern area cut through the rock, - - -	18	6
Length ditto ditto	55	

Number of pillars 44, the space occupied by the temple interrupting the ranges. It is well worthy notice, that one of the beams of stone, that, crossing this cave, rests on the heads of the pillars, is much thicker than the rest; which, it may be supposed, arose from the workmen perceiving some flaw in such an immense space of ceiling supporting such a mass of mountain above.

There are thirty steps on the southern entrance, but as they do not reach a third of the way to the water, it may reasonably be supposed that the stupendous fall from the top of the mountain to the present bottom, 120 feet, must have greatly deepened the reservoir since its first construction. This fall forms a *nullah* that runs by the village of *Ellora.*

	Feet.	Inches.
Length of the gallery over the southern stair case, - - -	29	
Breadth ditto ditto	14	
Height, ditto ditto,	7	6

JUNWASSA,

JUNWASSA, *or the place of* NUPTIALS---- *Aspect* W. N. W.

This excavation is just across the chasm that lies between it and *Doomar Leyna.* It is much inferior to the preceding. It has a veranda with windows, by which the inner cave is enlightened, in which there are figures of MAHDEW, VISHNOO, and BRIMHA, on the left of the door; BHULLEL, LUCHME, and NARRAIN, on the right; and on the left hand extremity, of the *Bharra Outar,* in which the boar is represented as bearing *Pritwa* or the world, on his tooth, and having *Seys* under his foot. On the right hand end side is a sleeping figure of KOOM KURN, with a woman chafing his belly. You enter the cave from the veranda by a door. In the cave there are no figures of any note, though there are niches. It remains, therefore, only to give the dimensions of this cave, and proceed to others more worthy notice.

Dimensions.

	Feet.	Inches.
Length of veranda, - -	64	
Breadth ditto, - -	8	
Height ditto, - - -	12	2
Breadth of the door way entering the cave from the veranda by four steps,	5	5
Height ditto, - -	8	
Length of the wall, after entering the door, without including two recesses at each end, - - -	66	11
The two recesses at each end, square,	6	
The two recesses, height, -	6	
Breadth of the hall, - -	19	6
Height ditto, - -	11	2
Another recess on the right hand within the hall, square, - - -	7	0

The

	Feet	Inches
The recess containing the temple, depth, 22 5 by	11	11
Ditto, height, - -	8	2

A few yards further to the right is another part of the *Junwassa*, with nearly the same aspect, N. 80 W. as the last, with an open front of four pillars, three feet six inches square at the base, and thirteen feet high, and two pilasters. After crossing the room or hall on entering, a recess is formed by contracting the length of the hall. On each side in this recess are female figures. The front of the recess is formed by two pillars and two pilasters, the singular style of which, appears in the annexed Plate F. In the recess is a square temple, having in it a raised altar with the *Ling* of MAHDEW. On each side of the door of this temple, are two gigantic male figures, with each a smaller female. The *Brahmen* that attended me, called the male figures CHUND and PRICHUND. There is a passage round the temple in the recess.

Dimensions of this excavation.

	Feet	Inches
Length of the hall, including a recess at each end of 15 feet each, -	111	•
Breadth of the hall, or first section, -	22	4
Height ditto ditto -	15	
The recess in which the temple stands, deep, - - -	40	
Ditto, breadth, - -	37	8
Temple, square, - -	21	
Door of the temple, breadth, -	4	4
Ditto, height, -	8	11

COMAR WARRA, *Aspect* W. N. W.

This cave is near the last. Its entrance deformed by fallen rock, and accumulated earth. It is composed of four sections, divided by four pillars, though the outer one is unsupported by any at present, whatever it may have been formerly, and it is from the immense overhanging mass of unsupported rock,

rock, that the fragments have fallen; which deform and obstruct the entry. The four sections decrease gradually in length, the last being a recess, on each side of the door of which there are handsome gigantic figures, the right hand one having a straight sword in his hand; the other is mutilated; but there is no figure within the recess, though there is a pedestal that seems intended to receive one.

Dimensions.

	Feet.	Inches.
Depth from the first pillars to the back of the recess - - -	31	
Length, laterally, - - -	57	

GHANA, *or the* OIL-SHOP.

This is a small group of little rooms a few yards from the last, and probably takes its name from a place like that used by oil-men for expressing oil. It merits little notice, otherwise than as exhibiting a figure of the idol GUNNES, and the *Ling* of MAHDEW. Very near it is another group of small rooms of nearly the same style with two *Lings* of MAHDEW.

NEELKUNT MAHDEW, *Aspect* W. S. W.

This excavation is a few yards from the last. At its entrance is the bull *Nundee*, in a square enclosure, on which time has made its ravages. After passing this figure of *Nundee*, you ascend into the cave by a few steps, on each side of which on the wall at the extremity are two figures that seem to be of a military order. Opposite the door is a recess with the *Ling* of MAHDEW made of very fine smooth stone. This excavation, like many of the preceding ones, is composed of sections formed by rows of pillars decreasing in lateral length to the recess. In the right hand wall of the section, before you reach the recess, is the figure of SWAMMY KARTICK; and on the opposite side GUNNES, mutilated of his

 trunk.

trunk. Near GUNNES is a smaller figure of SURSUTTEE, and in the front wall, on each side of the door of the recess, are figures of LUCHMEE in different attitudes.

Dimensions.

	Feet.	Inches.
Depth of the cave from the front to the bottom of the outer recess, containing the temple MAHDEW, -	44	4
Length of the cave at its greatest length in the first section of pillars, -	68	8
Height of the ceiling, - - -	12	
Recess, - - 28 6 by	17	

There are fifteen pillars and pilasters in this cave.

RAMISHWUR, *Aspect* W. S. W.

This excavation is but a few yards from the last. The bull *Nundee* is couchant at its entrance, and on the left of it is a cistern of very fine water, to which you descend by steps. Previous to entering the cave, on each side, at the extremities, are female figures. The front of this cave is supported by four pillars and two pilasters of considerable beauty and elaborately sculptured. A female figure on the left hand pilaster has much grace. It is worthy notice, that the figures in the latter caves have universally highly ornamented head dresses, different from the first, which have only curled hair. Opposite the centre of the entrance is a large recess, containing a temple, in which the *Ling* of MAHDEW is placed. This cave consists of a large hall, and the recess in which the temple is situated. At each end of the hall are recesses, containing a profusion of figures. The *Nou Chunda* occupy the extreme wall of that to the right. On the right hand of this recess is a curious group of skeleton figures, said to represent a miser, his wife, son, and daughter, all praying in vain for food, while two thieves are carrying off his wealth. Opposite to this

this group is another of KAL BEHROO, the principal figure being in a dancing attitude, aud musicians in the group.

Re-entering the hall again from the recess, on the right is a group of MAHDEW and PARWUTTEE, playing at *Chousur*, with NARRUND sitting between them, stimulating a feud, to which PARWUTTEE by the throw of her right hand, seems well disposed; which is below represented as having taken place, while a burlesque figure on the right is turning up his backside at them.

On the right hand side of the left recess, at the end of the hall, is the group of BOUANEE MYSASEER; on the left hand, that of SWAMMY KARTICK with his peacock and two mendaseers.

On the extreme wall, in the centre of this recess, is represented the nuptials of JENNUCK Rajah, at which there is a great attendance of figures, and amongst them, one holding a cocoa-nut used on such solemnities. Below are sitting GUNNES, BRIMHA, &c. officiating at the marriage ceremony.

Re-entering the hall again from the left recess, there is on the left hand a group of GOURA and PARWUTTEE in heaven supported by ROUON.

On each side of the pillars, before you enter the recess, are female figures.

On each side of the door of the temple in the recess are two gigantic and two smaller figures; the former said to be AHRAON MEYRAON; the smaller ones KEYROO BHUT on the right, and VISHROO on the left, challenging each other to a combat of wrestling.

Many of the pillars of this cave are elaborately ornamented. Very near this cave is another small one containing the *Ling* of MAHDEW, which does not require particular notice, and still a little further, another of considerable dimensions, but quite plain, and almost choked up both within and at the entry.

There are also three or four other excavations of the same rank between the last mentioned and the next great work of *Keylas*.

Dimensions.

	Feet.	Inches.
Length of the hall, including the recess at each end of nine feet each, -	90	8
Depth of the cave, including the recess in which the temple stands, - -	72	5
Height, - - - -	15	0
Square of the temple in the recess, -	31	0

The front of this excavation has four pillars and two pilasters; and at the commencement of the recess, two pillars and two pilasters.

KEYLAS *alias* PARADISE. *Aspect West.*

This wonderful place is approached more handsomely than any of the foregoing; and exhibits a very fine front, in an area cut through the rock. On the right hand side of the entrance is a cistern of very fine water. On each side of the gateway, there is a projection, reaching to the first story, with much sculpture and handsome battlements, which, however, have suffered much from the corroding hand of time. The gateway is very spacious and fine, furnished with apartments on each side that are now usually added to the *Dewries* of the eastern palaces. Over the gate, is a balcony, which

which seems intended for the *Nobut Khanneh*. On the outside of the upper story of the gateway are pillars, that have much the appearance of a *Grecian* order. The passage through the gateway below is richly adorned with sculpture, in which appear BOUANNEE USHTBOOZA on the right, and GUNNES on the left. From the gateway you enter a vast area cut down through the solid rock of the mountain to make room for an immense temple, of the complex pyramidal form, whose wonderful structure, variety, profusion, and minuteness of ornament, beggar all description. This temple, which is excavated from the upper region of the rock, and appears like a grand building, is connected with the gateway by a bridge left out of the rock, as the mass of the mountain was excavated. Beneath this bridge, at the end opposite the entrance, there is a figure of BOUANNEE sitting on a lotus, with two elephants with their trunks joined, as though fighting, over her head. On each side of the passage under the bridge is an elephant, marked (*a*) in the plan Plate G, one of which has lost its head, the other its trunk, and both are much shortened of their height by earth. There are likewise ranges of apartments on each side behind the elephants, of which those on the left are much the finest, being handsomely decorated with figures. Advanced in the area, beyond the elephants, are two obelisks (*b*), of a square form, handsomely graduated to the commencement of the capitals, which seem to have been crowned with ornaments, but they are not extant, though from the remains of the left hand one, I judge them to have been a single lion on each.

To preserve some order, and thereby render easier the description of this great and complex work, I shall, after mentioning that on each side of the gateway within there is an abundance of sculpture, all damaged by time, proceed to mention the parts of the centre structure; and then, returning to the right side, enumerate its parts; when taking the left hand, I shall terminate the whole in a description of

the end of the area, opposite to the gateway and behind the grand temple. Exemplifying the whole by references to the annexed plan.

CENTRE BELOW.

Passing through the gateway (1) below, you enter the area (2), and proceeding under a small bridge, pass a solid square (3) mass which supports the bull *Nundee* stationed above; the sides of this recess are profusely sculptured with pillars and figures of various forms; having passed it, you come to the passage under another small bridge, beneath which there is, on one side, a gigantic sitting figure of Raja BHOJ surrounded by a group of other figures. Opposite to which is as gigantic a figure of GUTTORDHUJ, with his ten hands. At the end of this short passage commences the body of the grand temple (4), the excavation of which is in the upper story that is here ascended by flights of steps on each side (5).

RIGHT AND LEFT HAND SIDES OF THE TEMPLE BELOW.

The right hand side is adorned with a very full and complex sculpture of the battle of RAM and ROUON, in which HUNOMAUN makes a very conspicuous figure. Proceeding from this field of battle, the heads of elephants, lions, and some imaginary animals, are projected as though supporting the temple, till you come to a projection (6), in the side of which, sunk in the rock, is a large group of figures, but much mutilated. This projection was connected with the apartments on the right hand side of the area by a bridge (7), which has given way, and the ruins of it now fill up the sides of the area. It is said to be upwards of 100 years since it fell.

Passing the projection of the main body of the temple, it lessens for a few paces, then again projects (8), and after a very small space on the line of

of the body of the temple, the length of this wonderful structure, if what is fabricated downwards out of a solid mass can be so called, terminates in a smaller degree of projection than the former. The whole length is supported, in the manner above mentioned, by figures of elephants, lions, &c. projecting from the base, to give, it should seem, the whole vast mass, the appearance of moveability, by those mighty animals. The hindmost, or eastern extremity of the temple, is composed of three distinct temples elaborately adorned with sculpture, and supported like the sides, by elephants, &c. many of which are mutilated. The left hand side (I mean from the entrance) differs so little from the right, that it is unnecessary to be particular in mentioning any thing, except that opposite the description of the battle of RAM and ROUON, is that of KEYSO PANDO, in which the warriors cousist of footmen, and others mounted on elephants, and cars drawn by horses, though I observed none mounted on horses. The principal weapon seems the bow, though maces and straight swords are discoverable.

CENTRE ABOVE.

The gateway consists of three centre rooms (9) and one on each side (9). From the centre rooms, crossing the bridge (10), you ascend by seven steps (11) into a square room (12), in which is the bull *Nundee*. This room has two doors and two windows. Opposite the windows are the obelisks *(b)* before mentioned.

From the station of *Nundee*, you cross over the second bridge (13), and ascend by three steps (14) into a handsome open portico (15), supported by two pillars (above each of which, on the outside, is the figure of a lion, that though mutilated, has the remains of great beauty, and on the inside, two figures resembling sphynxes) towards the bridge, and two pilasters that join it to the body of the temple, the grand apartment of which (16) you enter from the

 portico

portico by four handsome steps and a door way, on each side of which are gigantic figures. Advancing a few paces into the temple, which is supported by two rows of pillars, beside the walls that are decorated with pilasters, there is an intermission of one pillar on each side, leading to the right and left, to an open portico (17), projecting from the body of the temple, from the right hand one of which, the bridge already mentioned as broken, connected the main temple with the side apartments, to which there is now no visible access, but by putting a ladder for the purpose, though I was told there is a hole in the mountain above that leads into it, which I had not time nor strength to explore. The access to the opposite is by stairs from below. The recess (18) of the *Ling* (19) of MAHDEW to which there is an ascent of five steps, forms the termination of this fine saloon, on each side of the door of which is a profusion of sculpture. The whole of the ceiling has been chunamed and painted, great part of which is in good preservation.

A door (20) on each side of this recess of the *Ling* of MAHDEW leads to an open platform (21), having on each side of the grand centre pyramid, that is raised over the recess of the *Ling*, two other recesses (22), one on each side, formed also pyramidically, but containing no image. Three other pyramidical recesses (23), without images within them, terminate the platform, all of them elaborately ornamented with numerous figures of the *Hindu* mythology. Many of the outer as well as the inner parts of this grand temple are chunamed and painted. The people here attribute the smoky blackness of the painting within, to AURUNGZEBE, having caused the different apartments to be filled with straw and set on fire; which I can reconcile on no other ground, than to efface any (if any there were) obscenities, as there are many in the sculpture. Upon the whole, this temple, of which I was too much indisposed to give even the inadequate account that I might, if in perfect health, has the appearance of a magnificent fabric.

bric, the pyramidal parts of which seem to me to be exactly in the same style as that of the modern *Hindu* temples.

RIGHT HAND SIDE OF THE AREA.

This side of the rock has a continuance of excavations, as marked in the plan, but all those below, except the veranda, which I shall quit for the present, are of little note, and those above, of three stories called *Lunka* (24), which appear much more worthy of attention, are inaccessible, but by a ladder, from the fall of the bridge; I shall therefore proceed to the

LEFT HAND SIDE OF THE AREA,

In which there are excavations of some consideration below, from which you ascend to an upper story called *Pur Lunka*, by an indifferent stair-case, into a fine temple (25), at the extremity of which is a recess containing the *Ling* of MAHDEW, and opposite thereto, near the entrance from the stair-case, is the bull *Nundee*, with two large fine figures resting on maces, on each side of the recess in which he sits. The ceiling of this temple is, I think, lower than any of the foregoing. The whole of this temple is in fine preservation, strongly supported by very massy pillars, and richly ornamented with mythological figures, the sculpture of some of which is very fine. The ceiling, like the others, has the remains of painting visible, through the dusky appearance of smoke, with which it is obscured. Descending from *Pur Lunka*, you pass through a considerable imsculptured excavaton (26) to a verunda (27), which seems allotted to the personages of the *Hindu* mythology, (a kind of pantheon) in open compartments: these figures commence on the left hand with—1st, the *Ling* of MAHDEW, surrounded by nine heads, and supported by ROUON. 2d, GOURA PARWUTTEE, and beneath ROUON writing. 3d, MAHDEW, PARWUTTEE, and beneath *Nundee*. 4th, ditto ditto. 5th, VISHNU. 6th, GOURA PARWUTTEE. 7th, a *Bukta*, (votary) of VISHNU with

 his

his legs chained. 8th, GOURA PARWUTTEE. 9th, ditto. N. B. These representations of GOURA and PARWUTTEE all differ from each other. 10th, ditto. 11th, VISHNU and LUCHMEE, 12th, BUL BUDDER, issuing from the *Pind*, or *Ling* of MAHDEW. Here ends the left hand side, and commences the eastern extremity or end of the area (28), in which the figures are continued, viz. 13th, GOURA and PARWUTTEE. 14th, BEHROO, with GOVIN RAJ, transfixed on his spear. 15th, DYTASEER on a chariot, drawing a bow. 16th, GOURA and PARWUTTEE. 17th, KAL BEHROO. 18th, NURSING *Outar*, issuing from the pillar. 19th, KAL BEHROO. 20th, BAL BEHROO. 21st, VISHNU 22d, GOVIN. 23d, BRIMHA. 24th, LUCHMEDASS. 25th, MAHMUND. 26th, NURRAIN. 27th, BEHROO. 28th, GOVIN. 29th, BAL BEHROO. 30th, GOVIN RAJ and LUCHMEE. 31st, KISSUNDASS. Here ends the veranda of the eastern extremity, and I now proceed with that on the right hand (29) having in my description of that side stopped at the commencement of this extraordinary veranda for the purpose of preserving the enumeration of the figures uninterrupted, viz. 32d, MAHDEW. 33d, ITTULDASS. 34th, DHURM RAJ, embracing UGGAR KAUM. 35th, NURSING destroying HURN KUSHB. 36th, VISHNU sleeping on *Seys Naug*, the *Kummul* (lotus) issuing from his navel, and BRIMHA sitting on the flower. 37th, GOVERDHUN. 38th, MAHDEW BULLEE, with six hands. 39th, KRISHNA, sitting on *Gurroor*. 40th, BHARRA *Outar*. 41st, KRISHNA CHITTERBOOZ trampling on *Callea Naug*. 42d, BALLAJEE. 43d, ANNA POOMA. It is to be observed, that almost all the principal figures are accompanied in their respective pannels by others explanatory of the character of that part of the history of the idol in which it is represented. Had not my strength failed me, I should have been much more particular than I have been, in this and every other part of so wonderful a place, though the utmost minuteness could not have done

done justice to it. I am sorry to observe, that from the appearance of the hill above this veranda projecting greatly beyond the pillars at the eastern extremity, (as marked in the plan by the line 30) the water, during rains, must fall into the area in a perfect torrent, or cascade, of the whole height of the superincumbent rock, a number of loose pieces of which, lying on the slope above, seem ready for precipitation down the scarp.

Dimensions of the *Keylas.*

	Feet.	Inches.
Outer area, broad, - - -	138	0
Ditto, deep, - - -	88	0
Greatest height of the rock through which the outer area is cut, -	47	0
Gateway, height, - -	14	0
Ditto, breadth, without the modern building, - -	14	4
Passage of the gateway, having on each side rooms, fifteen feet by nine,	42	0
Inner area, or court, length from the gateway to the opposite scarp,	247	0
Ditto breadth, - -	150	0
Greatest height of the rock, out of which the court is excavated, - -	100	0
LEFT SIDE OF THE COURT, LOWER STORY, VIZ.-		
A small cave—in front, two pillars, and a pilaster at each end, with three female figures buried up to the knees, with rubbish, length, - -	22	6
Ditto, ditto ditto, breadth, -	8	0
Ditto, ditto ditto, height, -	9	8
Another excavation, in front five pillars, two pilasters, length, - -	57	9
Ditto, breadth, within the benches that are round this cave, - -	6	0
Ditto, height, at the end of this is a staircase to the upper story, - -	10	4
Interval unexcavated, - -	20	0
Another excavation, having two large square plain pillars, and two pilasters		

	Feet.	Inches.
in front, with a bench round the inside, the rock projecting beyond the pillars, length, - -	54	6
Ditto, ditto ditto, breadth, -	12	6
Ditto, ditto ditto, height, -	16	0
Door-way, leading to a gallery or veranda, five feet eleven inches high, by two feet nine inches wide. Gallery, containing figures. Length from the door-way to the extreme depth of the whole excavation, - - -	117	8
Ditto, broad, - - -	13	0
N. B. In this length are eleven pillars, each two feet eight and a half inches square.		
Ditto, height within the pillars. The projecting rock is about three feet lower, extending irregularly in the course of the length from seven to thirteen feet beyond the pillars, -	14	8

END OF THE AREA OPPOSITE THE GATEWAY BEHIND THE TEMPLE.

Whole breadth from side to side, measuring from the inner wall of the gallery on each side, - - - -	186	6
Breadth of the gallery, including the pillars, there being seventeen in this range, - - - - -	13	4
N. B. The rock projects beyond the pillars along this range and the right hand one irregularly from fifteen to twenty-two feet, and is lower than the ceiling.		

RIGHT HAND OF THE COURT, LOWER STORY, VIZ.

Figure gallery, or veranda, of the same dimensions as the preceding parts of the same gallery for the space of ten pillars, the angle one being included in the foregoing, three of which are broken, it is said to make trial of the power of the deity of the place, and

when

when it was found that the superincumbent rock did not sink, the tempter, said to be AURUNGZEBE, forebore further trial.

Door-way, two feet four inches broad, by five feet high, leads to a veranda, within this veranda is a room of sixty feet by twenty-two and eleven feet four inches high. Right end unfinished.

	Feet.	Inches.
Length, - - -	60	
Breadth, - - -	17	
Height, - - -	13	

A small projecting room, fifteen feet by thirteen, and six feet high, being choked with several finely sculptured figures.

An excavation raised twelve feet from the surface of the court.

	Feet.	Inches.
Length, - - -	36	10
Depth, - - -	14	9
Height, - - - -	12	

There is a multiplicity of figures in this apartment, detached from the wall. Amongst the rest a large skeleton figure with a smaller one on each side. The principal is sitting, with each foot on a prostrate naked figure.

An excavation, which has a small recess, opposite the entrance, of six feet by seven and eight high.

	Feet.	Inches.
Length, -	24	
Depth - -	18	
Height -	10	

	Feet.	Inches.
An excavation terminating the lower story, on the side, length, - -	24	
Ditto, - depth, - -	10	
Ditto, - height, - -	11	6

except between the two pillars, where the roof is arched, the first instance I have seen of the arch, and is there fourteen feet eight inches high.

LEFT HAND SIDE, UPPER STORY, VIZ.

	Feet.	Inches.
A small unfinished excavation, the dimensions of which were not worthy taking.		
Pur Lunka, is a fine lage excavation, ascended by a flight of twenty-five steps, and a doorway of three feet eight inches broad, by seven feet seven inches high, length, exclusive of the recess, in which is the temple of MAHDEW,	70	7
Ditto breadth, - - -	61	9
Ditto height, - - - -	14	6
Recess, in which stands the temple of MAHDEW, depth, - -	26	
Ditto breadth, (N. B. the temple on the outside is twenty-six by twenty feet),	39	
N. B. The whole of this apartment is full of figures, some very finely sculptured, and the centre floor is raised one foot, and the ceiling in proportion.		

RIGHT HAND SIDE, TWO STORIES.

FIRST STORY.

	Feet.	Inches.
A large room, formerly connected with the grand temple by a bridge, now broken down, depth, - -	18	
Ditto length, laterally,	60	
Ditto height, - -	16	
Another room, within the foregoing, entered by a door from it, having a bench all round, this inner room is very dark, having no light but from the doorway, depth, - -	29	
Ditto, length, laterally, - -	36	
Ditto, heigth, - -	11	

SECOND STORY.

	Feet.	Inches.
Entered by a stair case from the right side of the foregoing of twenty-four steps. A large room of the same dimensions as a correspondent one below, except two feet less in the height		
Another room within the foregoing, depth,	35	

Plan of the Grand Temple, KEYLAS.

	Feet	Inches
Another room within the foregoing, length,	37	
Ditto, height, - -	14	
The rock seems to have given way in the centre of this room, and the rubbish has fallen in.		

CENTRE.

Balcony over the gateway, fourteen feet by eight, and eight high. A room within it nine feet square, and about nine high. Another within it, same dimensions. One on each side from the centre, twenty-two by fifteen each. Bridge, twenty feet by eighteen, with a parapet three feet six inches high. Ascent by nine steps from the bridge into a distinct room, in which is the bull *Nundee*, sixteen feet three inches square. Another bridge, twenty-one feet by twenty-three broad, leading to the upper portico of the temple. This portico with the parapet wall is eighteen feet by fifteen feet two inches, and seventeen high: within a bench that is rounded of four high by three feet seven inches broad. You can enter this portico from the gateway by a passage that the filling up of the rubbish has afforded, but the proper passage is by flights of steps on each side, of thirty-six steps each, leading up on each side the body of the temple.

GRAND TEMPLE.

	Feet.	Inches.
Door of the portico, twelve feet high by six feet broad, length from the door of the portico entering the temple, to the back wall of the temple, -	103	6
Length from the same place to the end of the raised platform behind the temple,	142	6
Greatest breadth of the inner part of the temple, - - -	61	
Height of the ceiling, - -	17	10

Two porches on each side, measured without, thirty-four feet ten inches by fifteen feet four inches. The particulars of the intricate measurement

surement of this fine temple will be best understood from the plan formed on the spot.

Height of the grand steeple or pyramid computed about ninety feet from the floor of the court and of the smaller ones about fifty. Height of the obelisks about thirty-eight feet. Base eleven feet square, being eleven feet distant from each side of the room in which is the bull *Nundee*. The shaft above the pedestal, is seven feet square. The two elephants on each side the court or entry are larger than life.

DUS OUTAR. *Aspect* W.

A very small distance from *Keylas*. The access to it is by very rough steps in the rock, and the original entry being built up, you enter over the wall on the right hand into an excavated square area, on the left hand side of which is a small excavation. The middle of the area is occupied by what has been a very handsome square apartment, the ascent to the veranda of which, fronting the gateway, was by a handsome flight of steps, forming a portico, the roof of which veranda was supported by two pillars, one of which having given way, the roof has fallen. The front of this square has a stone lattice in the centre, and figures in the compartments on each side. The top has been adorned with figures. The two corner ones seem to have been lions, but time has destroyed their form. On the right of this square apartment is a dry water cistern, but on the left there are cells with fine water and plenty, and I dare say a little care would supply the other. The front of the area is greatly filled up with earth from the surrounding hill, and no preventative now appears to its washing in with the rain. The entrance into the square apartment is from the main structure if, as I have before observed, I may so denominate what has been fabricated downward s which consists of two stories, having, both above and below, a front of six pillars and two pilasters. It appears to have been filling up fast, to

prevent which, by a very temporary remedy, a trench is cut in the area in front of the ſabrick, and cloſe to it. The lower ſtory is quite plain, with two receſſes or courts at each end, and all the pillars are devoid of ornament, being extremely ſquare and maſſy. The paſſage into the upper ſtory having been ſtopped up, it was with great difficulty I aſcended through a ſmall hole on the left hand ſide. The room above is of great dimenſions, ſupported by eight rows of pillars in depth, all of which are ſquare and quite plain, except the front row. At the extremity of the centre aiſle is a receſs, containing the *Ling* of MAHDEW; and in the front of it, near the oppoſite end, is the bull *Nundee*, but without his head. The lateral walls, as well as that on eace ſide the receſs of MAHDEW at the end, are adorned with mythological figures in very high preſervation, and amongſt which the *Dus Outar* (or ten incarnations) are conſpicuous, whence I preſume the place is named. In the centre of each ſide of the lateral walls there is an altar.

Dimenſions.

Lower ſtory, having a front of ſix pillars and two pilaſters.

		Feet.	Inches.
Length,	- - - -	103	3
Depth,	- - - -	46	4
Height,	- - - -	14	9½
Upper ſtory, having the ſame front as below, greateſt length,	- - -	96	5
Ditto,	- - depth	101	10
Ditto, the ſame as below,	- height,		
Receſs,	- - depth, -	14	0
Ditto, lateral,	- length, -	37	1
Square ſtructure in the area,	length, -	32	0
Ditto,	- - breadth, -	26	3
Ditto,	- - height, -	10	1½

TEEN TAL. *Aſpect* W. 10 S.

Proceeding a few yards to the ſouthward of *Dus Outar*, you reach the excavation called *Teen Tal* (or three ſtories). The entrance to this ſtructure is from a level ſurface, through a good gate, in a wall left as the rock was hewn, into a fine area, as yet but little choked with earth or fragments. The front of this excavation has a fine and ſimple appearance, being compoſed of eight ſquare pillars and two pilaſters in each ſtory, all of which are unadorned, except the two centre ones of the ground ſtory, the ornamenting of which, however, has not affected their quadrangular form. After entering the area a few paces, it widens, and in the left hand corner is a reſervoir of fine water; indeed, all the water in theſe ciſterns is uniformly fine and clear. In the ſide of the area, oppoſite the water ciſtern, is a raiſed excavation, but of no note. The lower ſtory conſiſts of ſix pillars in depth, and at the extremity of the middle aiſle, is a receſs containing a gigantic image of SEYS. Proceeding up the middle aiſle, the excavation narrows at the fourth pillar, and continues ſo to the end, having on each ſide a ſmall room, and in the next pannel on each ſide two very large ſitting figures; that on the right of SUKUR ACHARY, and on the left of ADNAUT. On each ſide the door there are alſo large figures. Aſcending from the ground floor by a good ſtair caſe on the right hand ſide, the raiſed receſs mentioned above fronts you, which has a large ſitting figure of COVERE, and ſeveral others, that in any other place would not be unworthy notice. Proceeding to aſcend by the ſame fine ſtairs, you enter the noble veranda of the ſecond ſtory, oppoſite the entrance of which is a receſs with the figure of JUM ſeated in it. There is a door-way at each end of the veranda leading to four rooms in each extreme ſide of the rock. From theſe doors, the wall of the rock is continued to the third pillar on each ſide, and to the ſecond in depth, to give ſpace for two rooms on each ſide, but without figures. This continuation of the wall narrows the open-

2 ing

ing of the temple within the veranda to two pillars and two pilasters. At the extremity of the centre aisle is a recess, containing a very large sitting figure of LUCHMON, with two gigantic figures on each side of the door. But before you reach the recess, the room lessens again from the innermost row of pillars, to give space for two small rooms on each side. The greatest depth of this fine room has six pillars clear of wall, all of which are square and plain. Ascending from this story by a stair case at the opposite end of the veranda by which you enter it, but equally light and easy of ascent, you enter the third story, by a door, on the left of which in the landing place, is a small room, and opposite the entrance, at the end of the veranda, is a gigantic figure of SEY DEW; on his left, continuing by the lateral wall is, LUKKOOL; next to him, BHEEM; then ARJUN; then DHURM raja; being the five sons of PUNDOO. Opposite to whom are, in similar niches, the figures of OODO, MADO, PENDA, and SUDAN, the space of the door occupying that of a fifth figure opposite to SEY DEW. Advancing through the middle aisle of this very fine temple, it is lessened at the six pillars to make room, on each side of the great recess, for fourteen sitting figures with curled hair. Advancing from hence, you enter a kind of vestibule, very richly decorated with figures standing and sitting. And in the centre is a door leading into a recess, into which you descend by three steps. In front of the door there is a gigantic figure of RAM, sitting on a throne or altar, and attended on each side by the usual deities employed in his service. SETA being placed on the left hand side of the door on the wall opposite to him. All the pillars of this very fine and capacious temple are square and plain, but the ceiling has the remains of painting.

Dimensions of *Teen Tal.*

LOWER STORY.

	Feet.	Inches.
Depth of room, - - -	41	6

 Length,

	Feet.	Inches.
Length of room, - - -	117	6
Height ditto, - - -	11	6
Recefs deep, - - -	43	5
Room in the recefs, deep, - -	12	0
Ditto, - broad, - -	19	0
Ditto, - high, - -	14	0
Image fitting high, - -	11	3
Room in the firft landing place going up ftairs twenty-five by twenty feet. -		

Twenty-four fteps afcending to the fecond ftory.

Length of veranda, - - -	114	5
Depth from the wall of veranda to the recefs	66	6
Height of ceiling, - - -	12	$3\frac{1}{2}$
Recefs, deep. - - -	16	0

Twenty-four fteps afcending to the third ftory.

Length of veranda, - - -	110	5
Depth to recefs, - - -	66	9
Ditto of recefs, - - -	16	8
Height of ceiling, - - -	12	0
Area, viz.		
Greateft depth, - - -	79	0
Ditto breadth, - - -	110	0

Gateway, eight feet broad by eleven high.

BHURT CHUTTURGHUN. *Front* W. 10 S.

This is an excavation of two ftories, or but of two remaining above ground, in good prefervation, the ftair cafe of which being choked up, you enter by the wall of the veranda. After the former defcriptions, there is nothing in this worthy of being particularized. It feems to

to take its name from its dedication to BHURT and CHUTTURGHUN, two brothers of RAMCHUNDER, whofe figures, by the *Brahmen's* account, are the chief ones in this place.

Dimenfions.

	Feet.	Inches.
Area, length, - - -	102	3
Ditto, depth, - - -	25	0
Lower ftory—veranda the fame length as the area. Breadth, within the pillars, - - -	8	5
Sixteen fteps to the upper ftory of veranda, length, - - -	102	10
Depth from veranda to the recefs, -	44	4
Breadth of recefs, - - -	33	0
Depth of ditto, - - -	10	6
Height of ceiling. - - -	9	6

BISKURMA, or VISWAKURMA KA JOOMPREE, *or* BISKURMA,

The Carpenter's Hovel. Front, W. 5. S. (H. I.)

According to the legend, BISKURMA* was the artift, who fabricated the whole of thefe wonderful works in a night of fix months; but the cock crowing before they were finifhed, they remained imperfect, and he retired, having wounded his finger, to this his hovel, in which ftate the figure in front (1) of the entrance of this beautiful excavation is faid to be a reprefentation of him holding the wounded finger; but I rather think, with all due refpect to the legend, that the figure is in the act of devout meditation, as many fingers, with fimilar pofitions of the hands, occur. But quitting the fable for the fact, this excavation is, in beauty, inferior to none. In form it is unique, and in defign elegant. The portico is light, and ftriking to the beholder. On the right hand, as you enter, is a fine ciftern of water.

* Creator of the world, but allegorically, artificer of RAM.

Above

Above the gate-way (H), which is richly ſculptured on the out ſide, is a balcony, which ſeems well ſuited, if not intended, for a muſick gallery, to the interior temple (I), which has the appearance of an elegant chapel, with an arched roof, and is exactly in the ſtyle of a ſimilar excavation at *Kenara* on the iſland of *Salſette*, and another at *Ekvera*, near the top of *Bhore Ghaut*, firſt explored by Mr. WALES, the painter. At the upper end is the figure (1) above mentioned. From the ceiling are projected ſtone ribs, following the curvature of the arch to the capitals of the pillars on each ſide through the whole length of the excavation. Beſide the grand aiſle, or body, of the excavation, there is a ſmall paſſage formed by the row of pillars on each ſide round the altar, but it is dark and narrow. This ſingular form of cave, wherever I have met with it, has conveyed the ſame impreſſion of its being a place of congregation and adoration, rather than of reſidence or habitation, and has given riſe to an idea in my mind, from the orbicular ceiling, and the name and attitude of its inhabitant, that it may be meant to repreſent the Almighty, meditating the creation of the world, under the arch or canopy of unlimited ſpace. It is neceſſary however, to accompany this idea, with an acknowledgement, that the ſimilar caves of *Ekvera* and *Kenara*, are not inhabited by BISKURMA. They having only a very high altar, the top of which is circular, and ſituated as repreſented in the annexed drawing at the back of BISKURMA.

Dimenſions.

	Feet.	*Inches.*
Area, ſquare, - - -	49	0
Veranda below, in front, and each ſide having twelve pillars and two pilaſters, broad, - - -	14	0
Ditto roof, high, - - -	10	4
Door-way, four feet broad by eight feet four inches high, gallery above the door, ſquare, - - -	14	0

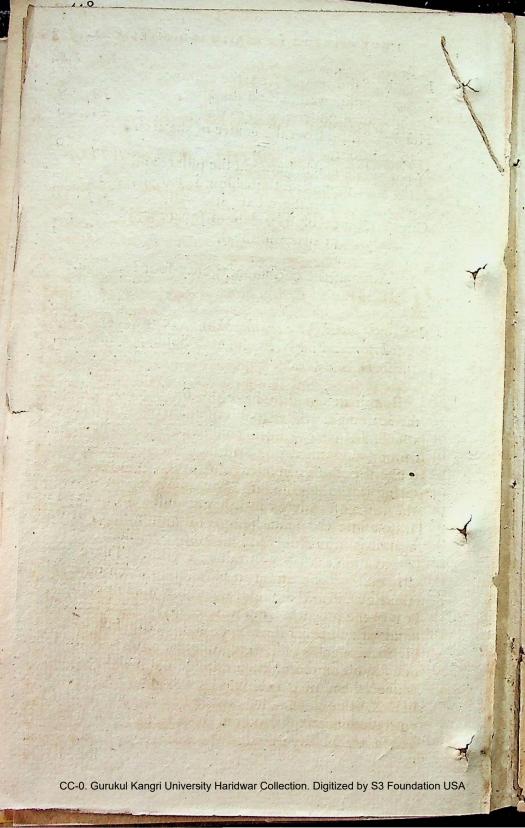
Length

	Feet.	Inches.
Length of the temple from the entrance to the oppofite wall behind the altar, -	79	0
Breadth of ditto from wall to wall, -	43	5
Height of ditto from the centre of the arch to the floor, - - - -	35	0
N. B. The height between the pillars and the wall where the the ceiling is flat, is,	14	10
Breadth between the pillars and wall, -	7	8
Circumference of pillars (two fquare and twenty-eight octagon ones), - -	8	1

Altar at the end about twenty-four feet high.

DEHR WARRA, *or the* HALLALCORE'S QUARTER. *Front, bearing from* Jugnath Subba, *diftant about a mile*, S. 25 E.

By this defignation, have the *Brahmens*, who defcribe them, thought proper to difcriminate this group of caves, which, though making no confpicuous figure here, would render any other place illuftrious. They under this term of pollution, endeavour to deter vifitors from entering it, though the large cave is a very fine one, over the front of which a little river muft rufh in the rainy feafon into the plain below, forming a fheet of water, that, in a beautiful cafcade, muft cover the front of the excavation as with a curtain of cryftal. There are two ftripes of ftone that run parallel to each other along the floor, from the entrance, the whole depth of this cave (the profpect from which, of the great tank, town, and valley, of *Ellora*, &c. is beautiful) and feem intended as feats either for ftudents, fcribes, or the fellers of fome commodities, a convenient paffage lying between them up to the idol at the end of the cave. N. B. The annexed fketch (Plate K.) was taken from a ftation near (3) on the right, or northern, fide of the excavated hill.

REMARKS

XI.

REMARKS ON SOME ANTIQUITIES

ON THE WEST AND SOUTH COASTS OF CEYLON;

WRITTEN IN THE YEAR 1796.

BY CAPTAIN COLIN M^c^KENZIE.

THE iſland of *Ceylon*, *Selan-dive*, or *Seran-diep*, ſuppoſed to be the *Lanka* of the *Ramayan* (though ſome *Hindus* aſſign it another ſituation) would naturally ſuggeſt ſome enquiry to the curious in *Indian* reſearch with ſo favourable an opportunity as its late reduction to our power: and though a few months paſſed on its weſtern coaſt, employed on objects of a very different nature, could not permit much obſervation (even if poſſeſſed of talents more adequate to the taſk) yet a deſire of promoting the intereſting objects recommended by the ſociety, by pointing out to the curious in theſe purſuits ſome remains of *Hindu* antiquity on the ſouth and weſtern coaſts of this iſland, which have caſually fallen under my notice, tempts me to ſubmit the following remarks to their conſideration.

It may not be altogether foreign to this ſubject, as connected with the traditionary accounts of the receſſion of the ſea at ſome remote period from theſe coaſts, to remark ſome of thoſe appearances which moſt forcibly ſtrike an obſerver, travelling for near five hundred miles along the low flat country of the lower *Carnatick;* which in many places furniſhes evident marks of its having been at one time covered by the ſea, in the marine productions diſcovered in digging; the ſea ſhells which are incorporated in the calcareous ſtones apparently

rently composed of these; and the level appearance of the surface of the land, devoid of wood of any long standing, except the groves which have been planted by the cultivators of the soil; and the several species of palm; with the jungle congenial to a sandy soil. One first remarks, on the coast of *Marawar*, specimens of the same coralline or marine productions, that in greater quantities are dug up at *Delft*, and some of the islands on the north coast of *Ceylon*, which indicate a connexion of the same materials, and which probably form the basis of the shoals, called ADAM'S bridge, between that island and the main. Parallel to the edge of the coast we also find along the margin of the sea a stratum of flat calcareous rocks, forming a kind of crust, probably a concretion of shells which abound here and on the coast of *Ceylon*, (as observed at *Manar*) and compose the greater part of the sand along the beach; and which probably also form the chain of low isles parallel to that part of the coast, called the *Flat-isles*, in the neighbourhood of the *Chanque* fishery.

The isle of *Ramisur*, the utmost limit of the *Hindu* religion in modern times, and of the conquests of the *Dekan Mussulman* princes, according to FERISHTA, lies near this coast; and is only separated by a channel of about two miles, too shoal to admit vessels of burthen. This island is low, sandy, and uncultivated; it is about eight miles to the pagodas (the resort of immense crouds of pilgrims at certain seasons) which are built near the sea, having in front an embankment of stone, yet unfinished; the houses of the *Brahmens* are built as usual in squares and strait streets, close to it; their rows of houses having mud terraces (*Payals*) in front, on which their women and children are often seen reclining under the shade of the thatched roofs. It is remarkable that the same fair complexion, and cast of features distinguish this class through all the different provinces, from eight to twenty degrees north latitude (and by all accounts still further) among nations varying so much in both, as

as the *Tamuls*, the *Tellingas*, the *Canarins*, *Mahrattas*, and *Orias*, the five families which appear to compose the body of the original inhabitants of the peninsula, at present distinguished by different dialects, as by different features.

The buildings of the *pagodas** are square and extensive, but have nothing remarkable, or superior in the stile, to the generality of those on the coast; which they resemble in the same crouded minute ornaments, the same spires† of brick work, with long porches in front, at the entry of which we were only permitted to peep through a long vista of doors, terminating before the deity of the place, whose image was placed at the furthest end of the penetralia of the temple, in too obscure a situation (though surrounded by lamps burning in day light) and at too great a distance to ascertain its shape and figure. At night a number of small lamps illuminated the inner recesses with a good effect. The same reserve which distinguishes the southern *Brahmens* in their temples, at *Tanjore*, *Seringam*, &c. prevented any communication here. We were told that no labour or cultivation is carried on in this sacred isle: safe embosomed amidst the waves they live on the contributions of the devout: several of the rajahs and *Poligar* chiefs of the neighbouring provinces expend large sums on establishments here. The vestibule or building on the east front of the pagoda, into which we were permitted to enter, is decorated with the statues of one of these benefactors (a chief‡ of the *Tinivelly* country;) and his ministers and attendants, standing in a row on either side in their proper dress: these statues, though preserving the dress and ornaments with a minute attention, have little else to recommend them, being deficient in symmetry and proportion; and the superiority of rank is distinguished by the size, according to the rule

* *Coil*, in *Tamul*. *Dewul*, in *Tellinga*. The word *pagoda* is not known in these languages.

† *Coverum* in *Tamul* signifies a spire.

‡ The *Pulitaver*.

which

which ſeems obſerved in moſt of the ſculptures on *Hindu* buildings. Among the figures carved on the outer walls the *Lingam* is frequently exhibited. On the weſt ſide of the ſquare is another longer portico, having a number of ſtatues, of another chief and his followers, placed on a raiſed ſtone terrace, on either ſide of the covered paſſage leading to the inner gate.

The guardianſhip of the ſacred iſle is in a family of *Byraagees* (devotees), the chief of which is doomed to perpetual celibacy; the ſucceſſion being carried on by the ſiſters, or the collateral branch, who only are permitted to marry. This arrangement ſeems to have ſome affinity to that of the *Travancore* and *Nair* ſovereigns. The preſent guardian is a child of ſix or ſeven years old; of a handſome mild aſpect, and regular features; his dreſs and turban were of the *Byraagee*, tawny red colour, and decorated with the beads that this claſs of mendicants wear. This young pontiff received the *European* viſitors, after landing, with great gravity and compoſure: his uncle, who was the efficient miniſter, attended and ſtood by his ſeat, to aſſiſt him in paying his compliments to his gueſts. From this pagoda a low tract of ſandy ground ſtretches out towards the eaſt to about twelve miles; terminating in a narrow ſpit of ſand. Within a mile of the point is the choultry of *Tona-goody**, a ſquare of low houſes incloſing a court, built for the accommodation of the pilgrims who came to this furtheſt point to perform their ablutions in the waves of the ocean, this being held one of the moſt ſacred and pureſt ablutions required by their religion. A *Brahmen* reſides at this choultry. A pole is erected on the point, to which lights are affixed at night; whether for the direction of mariners, or a religious motive, we could not learn The whole of this tract from *Ramiſerum* has the appearance of being waſhed by the

* *Goody* alſo ſignifies a temple in the *Tamul* language; *Tony* ſignifies water. It is remarkable that good water is found on this point, though the ſpit of ſand is ſo low.

ſea,

ſea, not a veſtige of ſoil appearing. On entering our boat at ſeven A. M.* we were detained ſome moments to wait for our domeſticks going through the neceſſary ceremonies and ablutions under the direction of the *Brahmen;* and hoiſting ſail for the land of demi-gods and *Dewatas* (the laſt object ſeen being the ſignal pole,) we coaſted in ſight and to the ſouth of ADAM's bridge, which we could only diſtinguiſh by the breaking of a ſurf on it at detached intervals, and came in ſight of *Talmanar*, the weſt point of *Manar*, at two P. M. the courſe being E. S. E. The coaſt of this iſland at *Talmanar* and along its coaſt appeared low and covered with cocoa and other trees, and buſhes, extending to the ſand bank near the water's-edge.

The iſland of *Manar* is not high, has no hills, and appears to be a bed of ſhelly ſand, worked up by the waves, and clothed with trees, among which the cocoa predominates. This iſland is ſeparated from the main of *Ceylon*, as *Ramiſerum* is from the coaſt, by a channel about two miles over; but this only appears at full tide, as the real channel or river, winding cloſe to the fort, is very narrow, and though deeper than the reſt, at the bar not above two and half feet at low water. Whether this narrow paſſage, and that of *Pambam*, are worn out by the action of the current ſetting in different directions along the coaſt, as the monſoon varies; or whether the iſlands, and the ridge of ADAM's bridge, are thrown up and formed by the periodical winds and currents, acting on the ſhifting ſands accumulated in the narroweſt part of the *Ceylon* channel, is a ſubject of curious inveſtigation, which would require ſome time and experience to examine: the enquiry might be rendered uſeful however, in ſuggeſting means of deepening the channels, or preventing their being filled up when deepened, by the ſand thrown in by the S. W. and N. W. monſoons†. It

* *January* 6, 1796.

† BALDEUS ſays, that the *Portugueſe* fleet eſcaped through it; and that the *Tewver*, or native governor, had a way of opening and filling up

It would be vain to look here for any traces of the earlier race: being naturally the thorough-fare paſſage into *Ceylon*, from the oppoſite coaſt, it would receive the impreſſion of each ſucceſſive race of invaders: accordingly we find its inhabitants now compoſed of a mixed race of *Portugueſe*, *Malabars*, and *Cingaleſe*, with ſome *Lobbees*, the deſcendants of the *Arab* race, (the *Mopillees* of the *Malabar* coaſt,) who ſubſiſt here chiefly by fiſhing. I obſerved on this iſland ſome of thoſe *Byraagees*, ſo well known on the lower roads of the oppoſite coaſts, conſtantly journeying from *Benares* to *Rameſur*, carrying pots of the water of the holy ſpring, or *Ganga* water, ſlung on croſs bamboos, and diſtinguiſhed by their tawny orange habit: theſe ſaid that they were on their way to viſit a famous pagoda in the interior parts of *Ceylon*, but I was not able to learn whether they had been uſually permitted to croſs over by permiſſion of the *Dutch* government, or that they availed themſelves of this opportunity of croſſing in our boats: it ſhews at leaſt that the connection of a ſimilar religion has not been altogether loſt.

Manar is memorable in *Cingaleſe* hiſtory, as giving refuge to the queen DONNA MARGARET, the laſt ſcyon of the ancient royal race, whom the *Portugueſe* thence carried into the heart of *Ceylon*, to cover their interference in the government, until they were driven out by the weight of accumulated crimes and degeneracy, to make way for the ſordid monopolizing yoke of the *Dutch*, which locked up from mankind the natural treaſures and valuable productions of this celebrated iſland. It was then divided into pariſhes with their churches. The fort is on a ſmall ſcale, ſquare and regular, nearly what BALDEUS and VALENTYN more lately deſcribe it, but the city exiſts only in a few tiled houſes of the officers of government, and ſome low huts covered and

up the paſſage at *Pambam;* this ſeems founded on miſtake, and theſe *Portugueſe* frigates muſt have been light ſhallops or ſloops drawing little water.—Page 706.

enclosed

enclosed with *Cadjan* leaves, inhabited by boatmen and fishermen. At low water, a small river winds, and divides the island from the main: but when the tide flows, the whole intermediate space between the opposite shores appears like an arm of the sea from two to three miles over, in which we see men and cattle wadeing across from the isle to the main. A species of heron, and tall birds of the *Cyrus* kind, make an uncommon figure in this view; standing and picking up their food in the midst of the sea.

The opposite coast of *Ceylon* is low and woody; the appearance of the shores indicates some extraordinary change, such as to have laid it under water; which is however contradictory to the received traditions of the sea's receding from the opposite coasts. Are we then to suppose that in retiring from the peninsula, the waves inundated the lower coasts of this island? Or, that these contradictory changes happened at different periods? These might in some measure be explained by an enquiry into the soil and strata of the *Wannie*, or low woody country of the north of *Ceylon*, and comparing it with the low land of *Payen Ghaut;* as facts and experiments will ascertain their similitude. It may be remarked however that exclusive of the five northern islands, the greater part of what formed the north extremity of the island, distinguished by the name of the kingdom or government of *Jaffanapatam*, is low, and separated by shallow channels, which in the rainy season divide it into so many islands.

The whole of this low land, forming the north part of the island, is covered thick with woods and jungles; this tract is called *Wannie*, and is estimated to contain 900 square leagues. The forest extends quite across from west to east and to the south, to the chain of mountains which connects the bases of the land, and gradually terminates in lower hills, and swelling grounds,

grounds, in the neighbourhood of *Galle* and *Matura*. The remarkable peaks of theſe hills are well known to navigators on the eaſt coaſt under the names of the *Friar's-hood*, the *Chimney*, the *Elephant*, &c. on the weſt coaſt; the moſt remarkable ſeen is ADAM'S-*peak*, which towers conſiderably above the reſt to the eaſt of *Colombo*.

From *Manar* none of theſe eminences are ſeen; the edge of the coaſt appears cultivated with rice; but the habitations are detached, and though divided into townſhips, are not collected together. This cultivation extends for about twenty-four miles and beyond *Aripo*; ſome churches are built in this tract. The foreſts and jungles now approach the coaſt, and for four days journey ſeparate the northern more inhabited diſtrict from the ſouthern at *Chillaw*, where the Cinnamon or *Cannel* land begins.

Some remains of antiquity being ſaid to exiſt at *Mantotte* on the oppoſite ſide to *Mánar*, I was conducted to the place, where a *Gentoo* city was ſaid to have been built formerly; ſome mounds reſembling the remains of the embankments of the *Carnatick* tanks, and ſome brick ruins, were the only veſtiges to be ſeen, not far from the *Portugueſe* church. Little information could be derived from the inhabitants, and curioſity here could find little gratification in the thick jungle, in which patches of paddy fields were interſperſed. Of the palace or dwelling of the rajah, or place pointed out as ſuch, nothing could be ſeen (and that with difficulty from the jungle) but a ſmall ſquare, of brick walls, now about four feet high, and ſubdivided into three apartments, appearing very like the gateway which generally forms the firſt entrance of the encloſure of a pagoda or great *Hindu* building: the approach of evening hindered any further attempt to explore this jungle. From ſome traditions of its former riches, ſearches have been recently made

3 among

among these ruins; VALENTYN mentions some gold * medals dug up, supposed to be *Roman* †.

FIGURE OF THE COUTT RAJA.

March 30, 1796.—Near *Belligam* or *Velli-gam*, ten miles N. from *Matura* near the road side, which passes among thick woods and plantations, is the figure of the *Coutta* raja,‡ sculptured on a rude block of granite, about thirty feet high. Having previous notice of the place, from some *Dutch* gentleman at *Galle*, I was brought there at seven in the morning. On my way to *Matura*, and opposite to this stone, about twenty feet off, is another of nearly the same size, and the ground between both is worked away to a hollow, on which it is necessary to be placed, to have a full view of this figure, which is cut out of the stone in relievo, but the whole is sunk in a hollow scooped out, so that it is thus defended from injury on the sides. The figure may be about fourteen feet high; the countenance mild; a full round visage; the eyes long, and the nose round and long: it has no beard; nor the usual distinguished marks of the *Gentoo* casts. I have been more particular in describing the features; as those of the *Cingalese* race are very different from the *Malabars*, and seem well preserved in the statues, and figures in their temples.

* On my return from *Galle*, in *March* 1796, a silver coin was given me at *Caleture*, part of a number, upwards of three hundred, found twelve years ago, at *Passun*, a place nine hours journey from *Jaffanapatam* near the sea coast, on the road towards *Trinkomallee*; it accompanies this paper.

† If the accompanying *Lingam*, the only one of the kind within my observation, was really found here, as I am assured it was, there can be little doubt of its being a *Hindu* town. The inscriptions from which the medals were supposed to be *Roman* are doubtful, and it is not improbable but the letters might be mistaken, though at *Nellore* of late years some *Roman* coins were found; and it is not surprising to meet the coins of a nation which carried its commerce into *India*, on a coast whose productions always invited the settlement of foreigners. The date of this settlement seems yet involved in obscurity.

‡ Plate, No. 1.

He holds up both his hands, with the fore fingers and thumbs bent; the head drefs is high, and feems ornamented with jewels; on the little finger of the left hand is a ring; on the arms bracelets; a belt high about the waift; the lower drefs, or drapery, fixed with a girdle much lower than in the *Gentoo* drefs, from which fomething like taffels depend; a collar and ornaments on the neck and fhoulders; and rings feem to hang low from the ears: no appearance of any arms or weapons.

On the fpot I was told that this was the figure of an ancient prince called COUTTA raja, from a cutaneous diforder he had been troubled with; that his figure was placed here in memory of his being the firft who had taught the inhabitants the ufe of the cocoanut, which is a principal part of the food of the *Cingalefe*, partiularly the flaves and poorer people. At *Matura*, the tradition of the COUTTA raja was told much to the fame purpofe, but with more amplification of circumftances. They defcribed him as the fon of the fovereign of a foreign land, who labouring under a malignant cutaneous diforder or leprofy, was landed on the coaft, and left to fhift for himfelf; when he was cured by aid of a holy reclufe, refiding in thefe woods, and by the milk of the cocoa tree; returning home to his native land, he recounted his wonderful cure, and was fent back with rich prefents to reward the holy man, whom they found no more. In memory of this the ftatue was fet up. Whatever degree of credit we may give to this ftory, the name of the COUTTA raja feemed to be familiar to all ranks, and is no doubt connected with fome hiftorical event.

TEMPLE OF BOODHOO AT VILLIGAAM.

March, 30,—Paffing on from the figure of the COUTTA raja, we came to *Villigāām* or *Billigāām*, a place of fome confideration, near a bay of the coafts; houfes are fcattered about, among the trees and cocoa woods, which

which obſtruct all view and give the idea of a thick planted grove or garden rather than of a village. Being deſirous of ſeeing a *Cingaleſe* temple here of ſome repute, I was conducted by a winding road of about half a mile, to a ſmall eminence encloſed at top by a low ſtone wall, ſurmounted by a kind of baluſtrade in the midſt of thick ſurrounding groves. At the gate, to which we aſcended by ſome ſteps, the prieſts received and conducted me to the door of the temple; they were bare-headed, and their hair cut cloſe; they had none of the diſtinguiſhing marks worn by the *Hindus*, on the forehead; their garment conſiſted of a cloth of a duſky ſnuff colour, which folded round the body and deſcended to the feet; their dark complexions, and inanimate features, exhibited no ſymptom of ſuperior intelligence, of deep penetration, or of keen genius; nor did any of that mild caſt of countenance, or chaſtened reſigned features, which ſometimes diſtinguiſh the recluſe, or devotee of every nation, appear here; neither ſevere, nor ſhy, their looks rather indicated a kind of apathy, or indifference. The building had no decorations without; a cloſe gallery ran round the body of it, to which only one door opened, that rendered it ſo cloſe, for want of freſh air, with the ſtrong fumes of the oil of ſeveral lamps burning, and the aromatic odour of yellow flowers, profuſely ſcattered on a raiſed terrace before the idol, that it almoſt overcame me on entering the interior apartment. On our being introduced, a curtain which encloſed the ſhrine, was drawn back, and the figure of BOODHOO, of a gigantic ſize, reclining at full length on his ſide, was at once diſplayed. His head lay on a pillow ſupported by one hand, the other extended on his body; the habit was very ſimple, of a ſaffron colour, covering him from the neck to the heels, and the only decoration was a kind of plain belt acroſs the body. This ſtatue was about eighteen feet long, and well proportioned, but whether made of wood or of compoſition, I could not learn. The countenance was mild and full, and the top of the head painted to re-

 preſent

present the hair in several small curls of a black colour. This was the grand idol of the place, but on approaching it, placed thus at full length on a raised terrace on which several lamps and a profusion of flowers were placed, no external signs of adoration or respect were shewn by the priests. In a corner of the room was a smaller figure represented sitting cross-legged on a coiled snake, the expanded head of which shaded him. From the same habit and the same rotund turn of feature, it was easy to see that BOODHOO was also here represented. A female figure, the natural size, decently, and not ungracefully, arrayed in the same garb, was represented standing in another corner, and holding a lamp in the extended hand. In a third corner stood a male figure said to represent VISTNHU: and in the fourth RAMA SWAMY, of a dark blue colour, and distinguished by his peculiar attributes of several hands and the correspondent *Hindu* ornaments of bracelets, rings, and chains. How a figure so totally different in its dress and ornaments came to be placed here, I was not, for want of an interpreter, able to learn. We may however conclude, that the votaries of BOODHOO do not exclude the worship of the other *Avatars*. The gallery which ran round the inner apartment was entirely covered with paintings, in compartments rudely finished, each apparently containing the history of some event of the life of BOODHOO: these, they told me, were also narrated in a great book always kept by the *Moodelier* of the place: one of these paintings seemed to represent the birth of the divine child; others represented his youthful adventures; some of which seemed a kin to the sportive KISHEN's amusements on the plains of *Muttra*. In one, a youth held earnest converse with a nymph, among deep shades and woods, while a monkey, hid by the branches of a tree, seemed to listen with mischievous intent: in another, the God appeared as a youth slyly stealing and distributing handfuls of coin from a chest, towards which an aged man approached with cautious steps, holding a huge key in his hand:

on others proceſſions appeared; feaſts ſeemed prepared; food was diſtributed to the poor of various nations (as appeared by their various habits); and the different habits and manners of men in active life were pourtrayed. A large white elephant made a conſpicuous figure in moſt of theſe aſſemblies. The ſtyle or *coſtume* of theſe paintings was entirely different from that of the *Hindus* on the peninſula, and plainly belonged to a different people, though they undoubtedly ſhewed thoſe of the *Cingaleſe* and the followers of BOODHOO. On obſerving in theſe repreſentations, chairs, tables, metal lamps, and raiſed ſeats, ſuch as are uſed by the preſent race inhabiting the coaſt of the *European* part of *Ceylon*, which I had at firſt ſuppoſed they had borrowed from their preſent maſters, I reflected that theſe indicated a connexion with the nations to the eaſtward which ſtill uſe them, and that cuſtom ſo widely different from that of the *Hindus*, who always ſeat themſelves on carpets, or cloths ſpread on the ground, might have been imported from *China*, *Siam*, or *Pegu*, with their other cuſtoms and religion.

Without the temple, but within the encloſure, was a ſolid building, with a cupola figured roof: it had no opening whatever; within it they told us BOODHOO was interred, or rather the ſacred elephant.

On my expreſſing a wiſh to be poſſeſſed of a book containing the hiſtory and drawings of the deeds of BOODHOO, the prieſts informed me, through a very indifferent interpreter, that it could not be copied off within a fortnight, but they promiſed to have a drawing of the principal figure ready on my return from *Matura*.

They were as good as their promiſe; for on my return on the evening of the 31ſt *March*, they had ready for me the outlines of the principal figure of BOODHOO, (Plate No. 2,) with ſome account of it, in the *Cingaleſe* character.

Near

Near a mile from *Matura*, we were ſhewn another temple of BOODHOO, in the deep receſſes of woods and ſhrubs, the whole country being covered with them, and the habitations diſperſed among theſe encloſed by gardens and little plantations. This temple, or rather houſe, was decorated in front with flowering trees and ſhrubs; among which was a clump of bamboos, remarkable for being of a bright yellow colour, with ſmall ſtripes of green branching from below the joints. The prieſts, with much complaiſance, permitted us to cut one as a ſpecimen, and preſented us with flowers, among which was the yellow *Moogry*. Within was an image of BOODHOO, and ſeveral other figures illuminated by lamps and encloſed by curtains, as at the other temples. In like manner the terrace or raiſed altar, was covered with flowers, and the walls with paintings. The dreſs of the prieſts was the ſame as already deſcribed, an orange or tawny-coloured cloth enveloped the body; the colour decaying turned to a kind of ſnuff colour.

We were conducted by a narrow ſtair-caſe to an upper-room, wherein was placed a painting of one of the figures below, (a female,) but we could not get a diſtinct account of it from want of an interpreter.

The head prieſts of theſe temples, we underſtand, were called *Terrinanie*. The inferior orders *Ganinnanra*.

Ruins of a Hindu *temple (or* Dewullum*) on* Dewunder-head, *or* Diví-nóor, *(called in the charts* Dunder-head*) the Southerly point of Ceylon.*

About three miles from *Matura*, the road paſſing along the ſea-beach of the bay formed by the promontory to the eaſt, we aſcended a gentle declivity cloathed with woods of various kinds of trees, but chiefly the cocoa, and in about a mile's walk came to a *Cingaleſe* temple*

* Plate, No. 1.

of

of a circular ſhape, of about 160 feet in circumference and twelve high, forming a terrace, from the center of which roſe a bell-ſhaped ſpire, crowned with a ſmaller cone, on a ſquare pedeſtal, the height of the whole ſuppoſed to be thirty feet; a parapet ran round this terrace, to which a door and ſtair-caſe led up; and here, expoſed to the open air, as we approached ſoon after ſun-riſe, we obſerved ſome *Cingaleſe* men and women walking round, bending and inclined towards the ſpire, apparently praying: they retired before we aſcended the ſteps. A ſmall thatched hut disfigured a corner of the terrace, which ſeemed deſigned to lodge one of the prieſts who received us as uſual with complaiſance. No figures, inſcriptions, nor any thing elſe remarkable, appeared, excepting a ſingle granite pillar four feet high placed on end, perhaps intended to receive a lamp at night. This ſtructure we were told was ſolid; it had no doors, windows, or any opening: they ſaid one of the teeth of the ſacred elephant was buried in it. It was, on a large ſcale, what the ſpire within the encloſure at *Billigaam* was in miniature, and ſeems to be the peculiar ſhape of a ſhrine or appendage of a temple of BOODHOO.

After a ſhort view, we were conducted from thence to the ſea-beach of *Dewunder-head*, ſcarcely 1400 yards diſtant, by a gradual deſcent along a walk or avenue in the woods; in walking over this ground, ſeveral remains of ancient buildings reſembling the *Carnatick* temples ſtruck us forcibly, and induced as narrow an inſpection as could be made in a couple of hours.

Cloſe to the beach we find the firſt avenue or building, probably deſigned for the uſe of the devotees, immediately before or after ablution in the ſea, which is not above forty yards off; the deſcent over the bank is not difficult, though the coaſt below is lined with maſſes of granite waſhed by the waves. It conſiſts of a colonnade of ſixteen pillars of granite about nine feet high, the

the four center ones of which only are cut to regular form with bafes and capitals: it exactly fronts the line of the avenue to the temple on the height: on its north fide are two pillars* alfo fculptured, forming an exact fquare with the two central ones of the colonade, in the center of which is a fquare opening of about two and a half feet on the fides faced with ftone but nearly filled up with earth; this feems to have been the fituation of the interior recefs where the object of worfhip was placed, of which and of the roof no veftige remains.

Proceeding thence by an eafy afcent, we crofs the ruins of a wall probably the enclofure of the grand temple, marked by feveral pillars and upright ftones, but no fculptures are to be feen till we reach the *Cingalefe* temple, nearly fronting which ftands the inner portal of a *Hindu* temple, confifting of two upright ftones supporting a crofs one, all carved on one face, with ornaments fimilar to thofe of the interior parts of the pagodas on the coaft; the center of the crofs ftone occupied by a fierce fantaftic head, the fides by a running border of foliage, and the bafement fupported by figures, exactly in the fame ftyle and tafte.

To the left of the *Cingalefe* building are more ruins, evidently the remains of other temples: the fteps leading up to the raifed floors of thefe are decorated with the heads of elephants, carved out of ftones placed on either fide; an ornament frequently to be obferved in *Hindu* temples, as the entrances of *Egyptian* buildings were ornamented with thofe of the fphynx.

Near thefe we meet a deep well, acrofs the mouth of which was placed a flat granite ftone, with a perforation of fix inches fquare through its center, between the figure of the prints of two feet raifed on the ftone: the fi-

* Plate, No. 1.

gure

gure occupying the reſt of the ſtone is ſcooped out to the depth of two feet. It is probable this well was incloſed within ſome of the buildings now no longer exiſting; its uſe does not appear; the croſs ſtone was too heavy to be eaſily moved, and occupies too much room to admit of water being drawn from it for any common uſe; the figures carved on it indicate ſome connexion with the *Lingam* and *Phallus;* and may furniſh a key to the object of worſhip here.

On narrowly examining theſe remains, little doubt remained in my mind that this was the ſite of an ancient *Hindu* temple, on the ruins of which the *Cingaleſe* building was raiſed at a much later period. The revolutions of religion, in which the firſt was overturned and almoſt every veſtige of its worſhip deſtroyed, to make room for the other, would, probably, be explained by the *Cingaleſe* hiſtory, an abſtract of which is publiſhed in VALENTYN's book, under the article *Ceylon.*

The name of the place *Divi-n-oor-Dewalla*, favours the opinion, and when we recollect the partiality of the *Hindus* to build their religious ſtructures in places near the ſea, to water, to the ſpring heads of rivers on the tops of remarkable hills, and mountains and ſituations favourable to retirement from the world, and to purer ablutions, according to their ideas; in places to which the extraordinary length and toil of the journey attached a ſuperior degree of merit; as inſtanced in the pilgrimages to *Jagarnat* and *Ramiſur;* to the wilds of *Purwuttum;* to *Tripetty;* to the ſources of the *Godavery* at *Trimbuck Naſſer*, and of the *Kiſtna* at *Baliſur;* we need not be ſurpriſed to find a fane of MAHADEO reared on the utmoſt bounds of *Lankadeep*, and their habitable world; and ſhall be ready to ſuppoſe that the ablutions at the furtheſt point of *Ramiſur* became the greateſt extent of their pilgrimages only, when revolutions, of which we have yet no diſtinct accounts, and the introduction

of

of a foreign religion and nation into *Ceylon*, rendered the pilgrimage to *Devinoor* no longer practicable.

We may then ſuppoſe that, previous to the introduction of the *Cingaleſe* language from the eaſtward, that of the *Hindus* in one of its dialects prevailed. Some of the *Dutch* now tell us, (as BALDEUS did long ago) that the inhabitants of *Ceylon* from *Chilaw* north, and round to *Batacaloa* on the eaſt, ſpeak the *Malabar* (or *Tamul*); while the *Cingaleſe* to the ſouthward, and the *Candians*, ſpeak the language ſaid to be derived from *Siam*. In examining many of the names of places throughout the iſland, we find many apparently derived from the *Hindu* languages; and judging by analogy, may infer that this was prior to the other, from giving names deſcriptive of certain qualities peculiar to theſe places; a rule as applicable in *India*, where the names of all the remarkable rivers, towns, and hills, are thus derived from a language deſcriptive of their qualities or hiſtory, as to the north and weſt of *Europe* where the *Celtick* language is traced in the ſame manner; and particularly in our native iſlands of *Britain*, where the original inhabitants may be traced, from many of the names, after various revolutions and ſucceſſive ſettlements of *Romans*, *Saxons*, *Danes*, *Normans* and *Germans*.

The head man of the village, a *Cingaleſe*, who could give no account of the origin of the ruins, propoſed to conduct us to another to which we went by a path winding among the woods about three quarters of a mile diſtant, gradually aſcending to the face of a riſing ground, where we found a ſmall pagoda or *dewul*, built of hewn ſtone, flat roofed, ſquare, with one door and having no ſpire pillars or arches; it had no ſculpture except ſome mouldings about the pediment cornices, and door; nor did any altar, image, or decoration appear to ſhew the object of worſhip; though from its exact likeneſs to the plain ſtyle of ſome of the ſmall pagodas built of hewn ſtone in the *Carnatick*, there can be little doubt of its origin.

The

The villager could give no other account of it than "that it was built by one GALGAMI, who dealt with evil ſpirits, by whoſe aid he reared theſe ſtructures." Thus we find the origin of all works, beyond the reach of recent time, and vulgar knowledge, in every country attributed to ſome ſupernatural agency, from the rude and laborious ſtructure of Stonehenge to thoſe of *Elora* (*Elloor*), and the more diminutive one of GALGAMI.

Though the figure of the *Lingam*, cow, and every object of *Hindu* veneration, ſeems purpoſely removed, enough remains, in the ſimplicity of the ſtyle of the architecture and its few decorations, to aſcertain its claim to antiquity; and this ſhews the uſe of claſſing the objects of this kind we frequently meet diſperſed over *India*. In the more modern religious ſtructures of *India* (I allude more particularly to thoſe of the *Carnatick* upper and lower, the architecture of which is very different from that uſed in the north-weſt parts of the *Dekan**), we find a novel ſtyle more complicated and certainly more contrary to good taſte. Theſe buildings and their *coverums* or ſpires are crouded with an immenſe number of ſmall pillars, pilaſters, cornices; and the numerous and ill diſtributed compartments filled with monſtrous, diſproportioned, figures of the deities, or rather their attributes, which disfigure them and make a ſtrange impreſſion at firſt ſight on *Europeans* accuſtomed to form their ideas of the beauties of architecture by claſſical rules drawn from the *Grecians*.

The more modern *Hindu* buildings are further diſtinguiſhed by being generally built of brick, excepting ſome of the greateſt, as *Canjeveram*, *Madura*, *Seringa*, *Ramiſur;* which from their ſtyle are ſuppoſed not to be of the more ancient. The more ancient† temples are not covered

* A comparative view of the different ſtyles of the architecture of theſe buildings in the *Carnatick* upper and lower, and in the north weſt parts of the *Dekan* would be curious.

† The gradations in their ſtyle may be traced from the ſmall pyramidal ſtructures of not above ſix feet high, to the firſt exhibitions of the figure

vered with the monſtrous figures above alluded to; they are generally plain; or at moſt exhibit a few groups repreſenting ſome remarkable parts of the hiſtory of the god worſhipped; ſuch as the adventures of KRISHNA, his eſcape when an infant, his ſporting amuſements among the *Gopia*, or the churning of the ocean by the *Dewatas* and *Aſſoors;* which ſeem rather deſigned to convey ſome moral, than as immediate objects of worſhip: from whence we may ſuſpect that as in latter times the ancient ſimplicity of their religion was debaſed and corrupted, the cuſtom of covering their walls with theſe monſtrous figures with many arms and heads was by degrees introduced: and this furniſhes data for forming rules by which perhaps the antiquity of theſe buildings could be aſcertained, by a compariſon of the different ſtyles; when written evidence (as found in the copper plates at *Conjeveram*, tranſlated in the third volume of the *Aſiatick* Reſearches, and may perhaps be found if the plates at *Purwuttum* were tranſlated) is wanting.

Theſe might aſſiſt, with the extenſive knowledge obtained of late of *Hindu* literature, in illuſtrating the more ancient part of the hiſtory of this nation, and aſcertaining the juſtice of their claim to a knowledge of the arts and ſciences through a remote antiquity; at leaſt their gradual advances in the arts might be traced from the firſt rude attempts; and new light thrown on the hiſtory of mankind in its early ſtages.

ANCIENT INSCRIPTION ON A *ROCK* AT *DEOGAMME*, NEAR *CALITURE.*

On my way back from *Pointe du Galle* to *Colombo* I had intimation from the *Dutch* clergyman of *Caliture*,

figure of MAHADEO, under the ſemblance of a rough ſtone, not unfrequently ſeen under trees in the open air. The figure of HANAMUNT, the protector of travellers, the companion and aſſiſtant of RAMA in his famous expedition to *Lanka* may be ſeen, cut in relievo on upright ſtones placed on the roads, and near the villages, throughout the *Carnatick.*

a poſt twenty-five miles ſouth of *Colombo*, of an inſcription cut upon a rock within a few miles of that neighbourhood; and being deſirous of ſeeing it, a party was made up to accompany me on the next morning to go by the river as far as a ſugar plantation lately laid out by a ſociety of gentlemen.

We embarked at day break in a ſmall boat on the river *Caligonga*, which is wide and deep, and its banks on either ſide lined thick with woods and buſhes cloſe to the water's-edge, which renders the landing difficult: the ſtream was placid, the tide in our favour, and we were ſoon rowed about three miles to the landing place, whence we croſſed the newly-cultivated ground, to the plantation houſe, and mill, about half a mile further. The country, where cleared, appeared through the openings of the woods beautifully ſwelling into ſmall eminences, clothed with various kinds of timber, among which the jack tree of a great ſize, and cocoa trees of different kinds predominated: the air was perfumed by the betel and various trees in flower, and a variety of flowering ſhrubs, which diffuſed a grateful fragrance all round. After leaving the ſandy coaſt, the ſoil was reddiſh, particularly of the riſing grounds; excepting the ſugar canes of the plantation and ſome rice cultivated in part of the lower ground, no other cultivation was obſervable; but the country, if once cleared in a greater meaſure, promiſes to be highly productive. A road appeared to have been recently made leading out to the eaſtward towards *Candia*, as we were informed, but no towns or collected groups of houſes appeared, though from the number of inhabitants we met, their habitations could not be far diſtant. A ſmall neat houſe is built on the plantation for the uſe of the overſeer, and the mill built near it, where the operation of bruiſing the cane is performed by three cylinders of granite placed vertically on a platform, worked by oxen placed below.

From

From hence we were conducted through woods and cocoa plantations to a temple of Boodhoo. It was built on a flat ſpace, cut out of the ſide of one of the ſwelling eminences, and had nothing remarkable in the ſtyle of building, being a ſquare houſe, with a tiled ſloping roof, and a gallery running round it, alſo covered with a ſloping roof; but conſiderably lower than that in the centre, ſo that this double ſtory of ſloping roofs, gives it the air of thoſe we meet with in *Chineſe* paintings. In the interior apartment (the curtain which encloſed it being withdrawn) the image of Boodhoo was ſeen, reclining in the ſame attitude as at *Biligam*, but not of ſuch a ſize; illuminated by lamps, and ſtrongly perfumed with flowers and odours. The walls were covered with paintings, as uſual, repreſenting his hiſtory: and ſeveral commodious houſes were built near it for the prieſts. I was diſappointed in my hopes of obtaining here ſome further lights on the inſcription, and an image reported to be ſculptured on the rocks; and my companions being deterred by the increaſing heat of the day, I proceeded in queſt of the place, attended only by a countryman who undertook to ſhew me the way. After walking ſmartly for an hour and a half through the woods, but out of ſight of the river, we came at nine o'clock to a huge block of ſtone in the channel about fifty yards from the banks, and ſurrounded by water, but nothing like an inſcription appeared on the ſide next it. The villagers whoſe habitations were ſcattered in the woods, near the place, finding what I was in queſt of, carried me back to a field, where was another large block of the ſame kind of ſtone of a black colour, probably from long expoſure to the air, and rude without any appearance of art: the higher part of it was about fourteen feet high, and on a low projection of about twenty feet from this, the villagers ſhewed me the veſtiges of characters, rudely carved of unequal ſizes; they were however ſo corroded by time and the effects of the air, that I ſhould have found conſiderable difficulty in making them out had

it not been ſuggeſted that ſome *chunam* or lime water, traced on the hollow characters indented in the rock, would render them legible on the dark ground of the ſtone; by tracing them in this manner, I was enabled to ſketch off the appearance of the whole with, I think, tolerable exactneſs; and the annexed drawing copied exactly from the the tracing taken on the ſpot, repreſents this inſcription *. Of the cauſes of engraving it here, or the hiſtory of the place I could get no ſatisfactory account from the natives, except ſome incoherent traditions of its being formerly ſtruck by lightning, whence it is called *Pelnucallu* or ſplit ſtone. The place is alſo called *Deo Gamme*.

NOTE.

A FURTHER paper on the iſland of *Ceylon*, and the worſhip of BOODH or BUDDHA, has been communicated to the Society by Lieut. MAHONY, who was for ſome time reſident on the iſland, and procured an extract from the *Maha Raja* WALLIEH, alſo called the *Raja* WULLY PUTTER, an hiſtorical work, which traces back the introduction of the religion of BUDDHA to the Prince VIJEERAJAH and his followers, who came to the iſland in a ſhip from the eaſtward, in the ſixth century before the *Chriſtian* era; about which period it is alſo to have been introduced in *Siam*. It is indeed the period at which GOUTAMA BUDDHA (the BUDDHA now worſhipped) is ſuppoſed by the *Singaleſe* to have made his appearance on earth: the epoch of his diſappearance, which conſtitutes their ſacred era, being five hundred and forty-two years before the birth of CHRIST, correſponding, within two years, to the ſame era in *Siam*, as ſtated in Mr. MARSDEN's tract on *Hindu* chronology.

* Plate, No. 2.

Mr.

Mr. Mahony's paper, which could not be inserted in the present volume of the Society's researches, will appear in the next: accompanied by some remarks from Mr. Harington, who was at *Columbo* in the year 1797; and has subjoined the following hasty descriptions, written on the spot, of two temples of Buddha; one situated at *Calanee*, near *Columbo*; the other near *Caliture* and mentioned in the concluding paragraph of Captain Mackenzie's paper.

TEMPLE AT CALANEE.

February 7, 1797.—Visited a temple of Buddha at *Calanee*, about six miles north east from *Columbo*. The images are of stone, nearly the same as that at *Boodh Gya**, viz. A man in a sitting posture, the right leg supporting the left, and the right hand supporting the left hand. The right arm and breast uncovered; the left side and the waist covered with a folding vest, the end of which hangs down before. The complexion fair, but no conclusion can be drawn from this, or from the features, as two images in the two temples at this place differ considerably in these respects; one is a fair round face, the other darker and more oval. Both agree in long pendent ear rings, and crisped hair; but instead of a knot of the latter, as apparently represented on the image at *Boodh Gya*, the heads of all the figures of Boodh at *Calanee* are crowned with a sort of *tiara*, somewhat resembling a hand; or rather five fingers joined to each other, (called *Seeraspooter*). In one of the temples three images of the above description were enclosed in a glass case, which the *Gonni*, or officiating priest, readily opened to satisfy my curiosity, and allowed me to approach as near as I wished, without even desiring me to take off my shoes as usually required in other parts of *India*. Before the case, which stood on the north side of the temple, and extended the whole length of it, was a

* A place near *Gya*, in the province of *Bahar*, where there is a temple of Boodh; as there also has been at *Aud-cashee* near *Benares*.

wooden

wooden table, on which oblations are made at noon. Thefe ufually confift of flowers, fruits, or money; no animals being here facrificed. The lotos, from furrounding reprefentations of devotees, appears to be the favourite flower of the god, and I alfo obferved the *Keyora* and *Gool-acheen*, two of the moft fragrant flowers in *India*. Images of BOODH, and other figures, among which HONEEMAN, BRAMA, and VISHNU were pointed out to me, are painted on the walls and roof of this temple, but chiefly BOODH, in different poftures, fitting or fleeping, and his devotees bearing each a *Nagifur* flower; with fixteen reprefentations of *Daghopes* (hereafter mentioned) which are faid to reprefent the fixteen temples or rather monuments of this defcription on the ifland of *Ceylon*. The idol temple I am now defcribing is called a *Veehar* (or college), and confifts of one fmall apartment, of an oblong fquare, compofed of common brick and mortar materials with a tiled roof. It is faid to have been built time out of mind, but from its ftructure cannot be ancient. I faw nothing peculiar in its exterior, and have nothing further to remark on its interior, but that it contained a lamp faid to be kept always burning, and a curtain occafionally drawn acrofs the middle of the apartment to keep the fanctum from the eyes of the prophane. On each fide of the door way, enclofed in receffes cut into the wall, are too large figures, the janitors of the god, and others are fculptured round bearing a club, and covered with a high *tiara*. In the paffage which leads from the firft temple (above defcribed) to a fecond of the fame conftruction are two other large figures cut in alto relief, reprefenting two attendants on the local deity. The fecond temple contains a fingle figure of BOODH, refembling the figures in the other temple with the differences already noticed, and fomewhat larger, being I fuppofe fix feet high in the fitting pofture, whereas the firft could not be above five feet; or perhaps four and five feet may be nearer the exact height of the two. A large elephant's tooth, given by the king of *Candia*, is fixed in the ground near this image, and a fmall ele-

phant of braſs, with a driver of the ſame metal, forms the ornament of a lampſtand; the light of which was extinguiſhed; nor was any other light burning in this temple.

Both the above *Veehars* ſtand on an eminence, ſurrounded by cocoa-nut and other trees, and by a low wall, which likewiſe encloſes a third building to the north of the others, called *Daghope*, with the addition *wahunſee*. This building is a ſolid maſs of earth and brick-work, of a conſiderable height, perhaps ſixty feet, and ſhaped ſomewhat like a dome with a cupola above. This monumental temple is ſaid to contain twenty images of BOODH buried below it. The inſide is a mound of earth; the outſide a covering of no great thickneſs of brick, which has been damaged and partly deſtroyed by the rain. At the foot of the eminence is the houſe of the prieſts, five in number, who have been appointed to officiate at the ceremonies performed at this place daily at noon, and annually at the principal feſtival in *Byſaak;* when great numbers of pilgrims are ſaid to aſſemble here. The prieſts are called *Gonni*, and if learned men, *Taranaſhi*. RAKHITA BOODDHA, and GHOSE BOODDHA, who attended me, were neither of them *Brahmins*, nor, as far as I can underſtand, are there any *Brahmins* on the iſland*. They were both as civil and attentive to me as men could be, and after preſenting me with cocoa-nut and plantains, would not allow me to pay for them, or to give them a preſent, although they had permitted me, without objection, to make a pecuniary offering to their god.

TEMPLE AT OOGULBODDA.

March 10th.—Viſited *Oogulbodda Veehar*, two coſs eaſt of *Caliture*. The temple is a tile-roof building,

* There probably are, however, at *Candia*, where there are *Hindu* temples: the preſent king, who came from *Tinevelly* in the *Carnatick*, being of the *Hindu* religion; whilſt the bulk of his ſubjects are worſhippers of BOODH.

an

IMAGES in the TEMPLE at OOGULBODDA.

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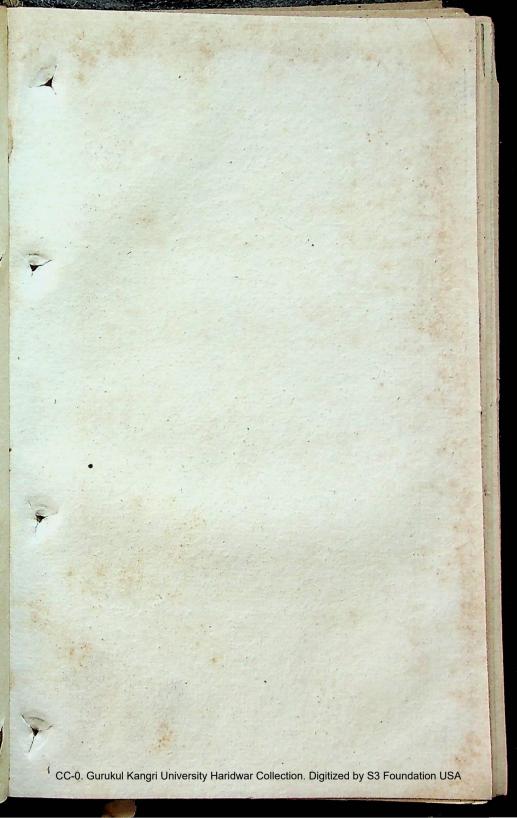
J. Basire sc.

an oblong ſquare, with a veranda, ſupported by ſquare brick pillars, and covered with leaves of the cocoa-nut tree. Situated on an eminence and ſurrounded by trees. Near it, on the eaſt ſide, is a triple-roofed building, called *Beinamadoo*, in form like a pigeon-houſe and covered with *Cajans*, in which the precepts of BUDDHA are read to his votaries at feſtivals and other times of aſſemblage. No *Daghope**. The former *Veehar* at this place was deſtroyed by the *Portugueſe*, and the preſent erected by DIGUMBER SIDDART BUDDHA, the old prieſt who now ſuperintends it, about forty years ago. This *Veehar*, beſides two large figures of *Janitors* at the entrance, and various paintings on the wall within the veranda, hiſtorical and mythological, contains a coloſſal image of BUDDHA, eighteen cubits in length, compoſed of earth and cement, in a ſleeping poſture; or rather reclining on his lotos throne; his head reſting on a pillow, and ſupported by the right arm, whilſt the left is extended on the thigh of the ſame ſide. He has the ſame *tiara*, ear-rings, and curled hair, as all the other images I have ſeen, and, with no unpleaſing aſpect, is painted of an azure brown complexion; whilſt other images in the ſame temple are of a duſky yellow colour. His mantle, which nearly covers him (the right breaſt only excepted) is yellow, the general colour of the *Sewara*, though on one of the images in this temple it is a dark orange, approaching to red. Before this figure is the principal altar; and, beſides flowers of ſeveral kinds, there were upon it above a dozen ſmall braſs figures of the god, (one of which the prieſt gave me†, at my particular deſire, after having preſented my offering; though not without an evident ſtruggle with his feelings, which

* The ſolid monumental building before mentioned, and repreſented in the Plate, No. 1, accompanying Captain MACKENZIE's paper. Its deficiency at the temple of BUDDHA here deſcribed is ſingular; as it appears a general appendage to a *Veehar*. Whether it has any connexion with the pyramids of *Egypt* we yet want evidence to determine.

† The ſitting figure in the accompanying Plate, No. 2.

were overcome by the perſuaſions of the other prieſts preſent) a braſs inkſtand, with ſome images on it; and a covered *Carandu;* (or miniature *Daghope;*) at leaſt ſaid to be ſuch; though from whiſperings, and the explanation given me that it was of braſs, and therefore not proper to be expoſed, leſt it ſhould leſſen the veneration of the votaries, I ſuſpect it was not exactly what it was pretended to be.

The above-deſcribed coloſſal image, lying in a north and ſouth poſition, occupies the whole of the weſt ſide of the temple. At the north end is another image of Buddha, in a ſitting poſture, nearly the ſame as at *Calanee*, but ſurrounded with more ornaments; having on each ſide two tygers or leopards, with two alligators: and, over the head, a fabulous animal called *kimis*, with three large teeth in front and two on each ſide of the mouth. Theſe ornamental figures, I was informed, have no connexion with the character or hiſtory of Buddha; and ſhould have been placed on the outſide of the temple, had there been room. Two figures on each ſide of this image, with chowries in their hands, were ſtated to be Vishnu, in attendance upon Buddha: but I have ſome doubt of the accuracy of this information, as at the ſouth end of the temple, where there is a third image of Buddha in a ſtanding poſture, there is likewiſe an image, evidently of Vishnu, of black hue, and crowned with a high *tiara*, which bears no emblem of attendance or ſervice; though the prieſts, whilſt they acknowledged him to be a Devyo, declared him to be inferior to Buddha, and placed in his temple as one of his attendant worſhippers. There are ſeveral other images of Buddha in this temple, which, having no peculiar characteriſtic, do not call for diſtinct notice. It may be of uſe to obſerve, however, that on my pointing out the uniformity of the head-dreſs, in reſpect to the criſped hair; and aſking whether it was meant to repreſent the hair of an *Abyſſinnian;* the prieſts, of whom four were preſent, anſwered

ſwered in the negative, with apparent abhorrence; and the prieſt who had before attended me, repeating his previous information of BUDDHA's being the ſon of SUDODHANA rajah, and born in *Muggud deiſh (Bahar)* added, in explanation of the hair being ſhort and criſped, that BUDDHA had on a certain occaſion cut his hair with a golden ſword, and its appearance in conſequence was meant to be repreſented on his images. I recollect nothing further of conſequence obſerved by me (not an hour ſince) in this temple, except that ſeveral lamps were burning, which are ſaid to be perpetually kept lighted (though of this I have ſome reaſon to doubt), and that the ceiling was covered with ill-executed paintings of the lotos; whilſt on the walls, beſides a flower reſembling the *Nagiſur* (if not the ſame,) the *Keyora*, of the ſpecies which contains the greateſt quantity of fragrant duſt, appeared the chief votary of the vegetable tribe.

After writing the foregoing, and converſing through an interpreter with the four prieſts on the difference between a *Gonninaſhy* and *Taranaſhy;* the manner of electing theſe *under graduates* and *doctors;* and the mode of abdication when a deſire of marriage, infirmity, or other cauſe requires it; the nature of BUDDHA's doctrines as to a future ſtate, and the creation of the univerſe (on the former of which important ſubjects he has ſpoken with more certainty than on the latter); and laſtly on the daily worſhip of BUDDHA and his feſtivals; to ſhew me the uſual ceremonials, although it was now neither morning, noon, or evening, the three appointed times of daily devotion, they moſt cheerfully offered to conduct me again to the temple, and after a few preparations, to ſatisfy my curioſity on this head; apologizing at the ſame time they had not the means of doing ſo, as I could be gratified at *Candy*, where numerous muſical inſtruments are uſed in the *Poojah;* and particularly on grand occaſions, as the feſtival of the birth and death of BUDDHA on the 15th *Vyſaak;* the KATICK *poojah*

poojah on the 15th *Eel;* the harveſt feaſt in the month *Doorootoo;* and other feſtivals, of which they ſtated the entire number to be forty-eight, viz. on the 8th, 15th, 23d, and 30th days of each lunar month, or rather on the new and full moon, and firſt and laſt quarters of each month.

XII.

XII.

ON MOUNT CAUCASUS.

BY CAPTAIN FRANCIS WILFORD.

THIS appellation, at leaſt in its preſent ſtate, is not *Scanſcrit;* and as it is not of *Grecian* origin, it is probable, that the *Greeks* received it through their intercourſe with the *Perſians.* In this ſuppoſition, the real name of this famous mountain ſhould be *Caſus* or *Cas;* for *Cau* or *Coh,* in *Perſian,* ſignifies a mountain. Now, if we tranſlate this appellation of *Coh-cas* into *Sanſcrit,* we ſhall have *Cas giri;* or according to the idiom of the ſpoken dialects, *Cas-ghar* or *Cas-car;* and, really, ſuch is the preſent name of the mountainous region, in which PTOLEMY aſſerts, that the *Caucaſus,* properly ſo called, was ſituated. This country, which very much reſembles the valleys of *Caſhmir,* and *Népál,* is mentioned in the *Ayeen Akbery;* and was ſurveyed a few years ago by my friend MIRZA-MOGUL BEG. It muſt not, however, be confounded with the famous country of *Caſh-ghar,* or *Caſh-car* to the eaſtward of *Samarcand;* though the appellation and its etymological derivation be the ſame.

The true *Sanſcrit* name of this mountain is *C'haſa-giri,* or the mountain of the *C'haſas,* a moſt ancient and powerful tribe: who inhabited this immenſe range, from the eaſtern limits of *India* to the confines of *Perſia;* and moſt probably as far as the *Euxine* and *Mediterranean* ſeas. They are often mentioned in the ſacred books of the *Hindus.*

Their

Their descendants still inhabit the same regions, and are called to this day *C'hasas*, and in some places, *C'hasyas* and *Cossais*. They belonged to the class of warriors, or *Cshettris*: but now they are considered as the lowest of the four classes; and were thus degraded, according to the institutes of MENU*, by their omission of the holy rites, and by seeing no *Bráhmens*. However, the vakeel of the rajah of *Comanh*, or *Almora*, who is a learned Pandit, informs me, that the greatest part of the zemindars of that country are *C'hasas*; and that they are not considered, or treated, as outcasts. They are certainly a very ancient tribe; for they are mentioned as such, in the institutes of MENU; and their great ancestor C'HASA or C'HASYA is mentioned by SANCHONIATHON, under the name of CASSIUS. He is supposed to have lived before the flood, and to have given his name to the mountains he seized upon. The two countries of *Cash-ghar*, those of *Cash-mir*, *Castwar*, and the famous peak of *C'has ghar*, are acknowledged in *India* to derive their names from the *C'hasas*. The country, called *Casia* by PTOLEMY, is still inhabited by *C'hasyas*; and PLINY informs us† that the inhabitants of the mountainous region, between the *Indus* and the *Jumna*, were called *Cesi*, a word obviously derived from *C'hasa*, or *Chésai*, as they are often denominated in the vulgar dialects.

The appellation of *Caucasus*, or *Coh-cas*, extended from *India* to the shores of the *Mediterranean* and *Euxine* seas; most probably, because this extensive range was inhabited by *C'hasas*. Certain it is, that the mountains of *Persia* were inhabited by a race of people called *Cossæi*, *Cussæi* and *Cissii*; there was mount *Casius* on the borders of *Egypt*, and another in *Syria*; the *Caspian* sea, and the adjacent mountains, were most probably denominated from them. JUPITER CASSIUS, like JUPITER PENINUS in the *Alps*, was worshipped in the mountains of *Syria*, and on the borders of *Egypt*: in the

* P. 294.

† PLINY B. 6, c. 20. *Cesi* montani, &c.

Ayeen-

Epirus we find, that the titles of *Caſſius* and *Caſſiopæus*, given to JUPITER, were ſynonymous, or nearly ſo. In *Sanſcrit* the words *C'haſapa*, *C'haſyapa* and *C'hasyapati*, ſignify the lord and ſovereign ruler of the *C'hasyas*: *C'haſyapéya* or *C'hasapéya*, in a derivative form, implies the country of *C'haſapa*.

The original country of the *C'haſas* ſeems to have been the preſent country of *Caſh-gar*, to the north-eaſt of *Cabul*; for th *C'haſas*, in the inſtitutes of MENU, are mentioned with the *Daradas*, who are obviouſly the *Dardæ* of PTOLEMY, whoſe country, now called *Darad* by the natives, and *Dawurd* by *Perſian* authors, is to the north-weſt of *Caſhmir*; and extends towards the *Indus*: hence PTOLEMY, with great propriety, aſſerts, that the mountains to the north eaſt of *Cabul* are the real *Caucaſus*.

The country of *Caſhcar* is ſituated in a beautiful valley, watered by a large river, which, after paſſing cloſe to *Chágá Seráy*, *Cooner* and *Noorgul**, joins the *Landi-Sindh*, or little *Sindh*, below *Jalálábád*, in the ſmall diſtrict of *Cameh* (for there is no town of that name), and from this circumſtance the little *Sindh* is often called the river *Cameh*.

The capital city of *Caſhcar* is called *Chatraul*, or *Chatraur*, and is the place of reſidence of a petty *Mahomedan* prince, who is in great meaſure tributary to the emperor of *China*; for the *Chineſe* are now in poſſeſſion of *Badacſhán* as far as *Baglán* to the north-weſt of *Anderáb*. The *Badacſhanát*, or diſtricts compoſing the province of *Badacſhán* (for *Badacſhanát* is the plural form) are ſeparated from *Caſhcar* to the ſouth-eaſt by a high range of mountains, always covered with ſnow; and the road from the new capital of *Badacſhán*, called *Faiázábád*, and *Faiziyu-ábád*, near the ſite of the old one, is through

* *Cooner* and *Noorgul* are called *Guznoorgul* in the Ayeen Akbery.

Zebawe. *Cashcar* is also called *Cashtwar*, which denomination is generally distorted into *Ketwer* and *Cuttore* by *Persian* authors and travellers. The town and district of *Ketwer*, mentioned in the life of *Amir*-Timur, is different from this, and lies about fifteen miles to the north-west of *Chágá-Serai*, on a pretty large river, which comes from *Váhi-gálamh*: it is generally pronounced *Catowr*. Pliny informs us* that mount *Caucasus* was also called *Graucasus*; this appellation is obviously *Sanscrit*; for *Gráva*, which in conversation, as well as in the spoken dialects, is invariably pronounced *Grau*, signifies a mountain, and being a monosyllable (the final being surd) according to the rules of grammar, it is to be prefixed thus, *Gráva-C'hasa*, or *Grau-C'hasa*.

Isidorus† says, that *Caucasus*, in the eastern languages, signifies *white*; and that a mountain, close to it, is called *Casis* by the *Scythians*, in whose language it signifies snow and whiteness. The *Casis* of Isidorus is obviously the *Casian* ridge of Ptolemy; where the genuine appellation appears stript of its adjunct. In the language of the *Calmack Tartars*, *Jásu* and *C'hásu* signify *snow*; and in some dialects of the same tongue, towards *Badaeshán*, they say *Jushá* and *Chushá*, *Tushá* and *Tuchá* or *Tuca*. These words, in the opinion of my learned friends here, are obviously derived from the *Sanscrit* *Tushára*, by dropping the final *ra*: this is often done in the vulgar dialects: in the same manner we say *whale*, *leg*, *calf*, &c. for *whalur*, *legr*, and *calfr*, which prevailed, it seems, in the ancient *Gothic* language. The words *Chasu* or *C'husa* are pronounced *C'hasa* or *Cas*; *Chusa* or *Cusa*, by the inhabitants of the countries between *Bahlac* and the *Indus*; for they invariably substitute *ch* or *c* in the room of *sh*. Thus they say *C'hehr* for *Shehr*, which in *Persian* signifies a *town*, &c. but the words *C'hasu* or *Cas* never signified *white*, or *whiteness*, unless by implication: and this is in some measure confirmed by Pliny, who seems to hint,

* Pliny, B. 6. C. 20. † Isidor. Orig. B. 14. C. 28.

that

that the word *Graucasus* signified snow-white. PTOLEMY places mount *Casius*, or *Casis*, in a country called *A cháśá*, which was situated between *Ládác* and *Yarc'band*. The word *Ac* signifies white, and *Cárá* black, in the *Turkish* language, which is used in the country about *Samarcand*, and both are obviously derived from the *Sanscrit Ach'h* and *Cálá*. The word *Ac'hasa* is corrupted from *Ach'h-C'hasa*, and in the vulgar dialect of that country *A'c-c'hásá*, the white *C'hasas*; because the inhabitants of that country are *C'hasas*, and are remarkably fair; whilst the southern *C'hasas* are of a darker complexion. According to the report of respectable merchants, who constantly travel from *Cashmir*, *Nurpoor*, &c. to *Yárc'hand*, the inhabitants of the countries, situated between *Ládác* and *Yárc'hand*, use the words *A'c* and *Cárá*, till within a few days of *Yárc'hand*, where the *Cálmáck* dialect prevails.

The general rendezvous of these merchants, since the time of SHA'H-JE'HA'N, is at *Ládác*; from which they proceed in a body to the place of their destination, travelling, the greatest part of the way, along the *Indus*: for this famous river has its source in the mountains to the north-west of *Yárc'hand*, at the distance of about four or five days journey. Then taking a southerly direction, it comes within two days of *Ládác*, where suddenly turning to the west, it takes an immense sweep towards *Saighur*, probably the *Sheker* of the maps; and thence alters its course toward the confines of *India*.

The denomination of *C'hasa-giri* or *C'hasa-ghar* is now confined to a few spots; and is never used in any *Sanscrit* book, at least that ever came to my knowledge. This immense range is constantly called in *Sanscrit Himáchel*, or snowy mountain; and *Himálaya*, or the abode of snow. From *Hima*, the *Greeks* made *Imaus*: *Emodus* seems to be derived from *Himoda*, or snowy: *Himána*, *Haimána* and *Haimánas*, which are appellations of the same import, are also found in the *Puránas*: from these is probably deriv-

ed

ed *Amanus*, which is the name of a famous mountain in the leſſer *Aſia*, and is certainly part of the *Himá-laya* mountains; which, according to the *Puránas*, extend from ſea to ſea. The weſtern part of this range was called *Taurus;* and STRABO * ſays, that mount *Imaus* was called alſo *Taurus*. The etymology of this laſt appellation is rather obſcure; but ſince the *Bráhmens* inſiſt that *Toc'háreſtán* is corrupted from *Tuſhára-ſthán*, by which appellation that country is diſtinguiſhed in the *Puránas;* and that *Turán* is derived from *Tuſhárán*, its *Sanſcrit* name, the *ſh* being quieſcent; may we not equally ſuppoſe, that *Taurus* is derived from *Tuſhára* or *Tuſháras:* for this laſt form is uſed alſo, but only in declenſions for the ſake of derivation. *Tuſhára* ſignifies ſnow; *Tuſhára-ſthán* or *Tuc'háras-ſthán*, the place or abode of ſnow, and *Tuſhárán* in a derivative form, the country of ſnow.

STRABO and ARRIAN were certainly miſtaken, when they ſuppoſed, that the followers of ALEXANDER, in order to flatter his vanity, had given out, that the mountains to the north and north-weſt of *Cabul*, were the real *Caucaſus*. The information the *Greeks* received about it was true and accurate: they were undoubtedly careleſs in their inquiries; but I can aver, that all the names of places in ALEXANDER's march, from *Báblac* or *Bálk* to *Multan*, (where my friend MOGUL BEG's ſurvey ended), are either pure *Sanſcrit*, or analogous to the idiom of the dialects uſed in the countries he conquered. The moſt queſtionable names, according to the learned, are *Nicæa* and *Dædala:* the firſt is a true and accurate tranſlation of the *Sanſcrit Jayini-déví-ſthán*, or the place of the goddeſs of victory, who is worſhipped under that name at *Cabul* to this day. Numerous are the legends in the *Puránas*, relating to this place; which is called *Aſa-vana*, and in the ſpoken dialects *A'ſbáná*. There are two places of that name;

* STRABO, B. xi. p. 519.

one

one called the lower; and the other *Urdh-A'ſbánú*, or *A'ſbáná* the upper: from this laſt the *Greeks* made *Orthoſpana*.

As to *Dædala*, it is no uncommon appellation in *India*, ſeveral places are called *Daidayel*, *Dudhowla* or *Dudhawli*, and *Dundhyáli*: the town of *Dædala*, with the adjacent mountains, are called to this day *Dundhyáli*; but more commonly *Yauk-dundh* or *Dundh* the cold, being ſituated on a high mountain.

An extenſive branch of the *Caucaſus* was called by the *Greeks* *Parapamiſus*: it is a part of the mountainous region called *Dévanica* in the *Puránas*. I believe, there is no general name at preſent for the whole range: but that part, which lies between *Cabul*, *Bámíyan*, and *Anderáb*, is called *Hindu-caſh* and *Hindu keſh*; which laſt denomination has been diſtorted by *Perſian* authors, and travellers into *Hindu-Coh*; at leaſt in the opinion of the natives. Whether the appellation of *Hindu-Caſh* has any affinity with the *C'haſas*, I cannot determine: but the inhabitants ſay, that this name was given to them, from a certain giant, who uſed to lie there in wait, to catch (*caſh*), or to kill (*keſh*), all the *Hindus*, who paſſed that way. We find it called alſo *Sheybar-Tág*, or *Sheybar-Tau*, or the mountains of *Sheybar* or *Shabar*, under which appellation PROMETHEUS is generally known in the ſacred books of the *Hindus*. Be this as it may, the *Greeks* called it alſo *Parapaniſus*, in the ſame manner, I ſuppoſe, that they called the river *Pamiſus*, (in the *Peloponeſus*) *Paniſus*.

The name of this famous mountain is variouſly written in different authors and manuſcripts—

Parapamiſus,	*Parapaniſus*,
Paropamiſus,	*Paropaniſus*,
Parpamiſus,	*Parpaniſus*,

Paro

Paro Famiſus,	*Paro Faniſus,*
Parpameus,	*Parpaneus.*

Parapamiſus or *Parapameus* appears to be a compound; the firſt part, I conceived at firſt, to be the word *Pahár*, which, in the ſpoken dialects of *India*, ſignifies a mountain. In this ſuppoſition, the whole compound, ſtript of its *Greek* termination, would ſignify the mountains of *Vámí*, or *Bámí*, commonly called *Bámíyan*, a famous city ſituated in the centre of this hilly country. Unfortunately the word *Pahár*, which is not of *Sanſcrit* origin, is a diſſyllable; and moreover the ſecond ſyllable being long, and marked with a ſtrong accent, it cannot of courſe be prefixed. Beſides, the word *Pahár* is never uſed in that country; but they ſay *Ghar* above *Déra-Iſmaïl;* and *Roh* below it, amongſt the *Baloches*. *Roh* is a *Tartarian* word, and indeed the *Baloches* ſeem to be the remains of ſome colony of *Tartarian* origin; it was originally the ſame with *Oros* in *Greek*.

The word *Pahár* is ſometimes prefixed: but then it is in another ſenſe; as for inſtance, *Pahár-pur* (literally *Hill-burgh*) ſignifies a town ſituated on, or near, a mountain.

The word *Parapamiſus*, or *Para Famiſus*, is obviouſly derived from the *Sanſcrit Para-Vámi*, or the pure and excellent city of *Vámí*, commonly called *Bámíyan*. It is called in *Sanſcrit Vámí-nagari*, *Vámí-grám*, and in a derivative form *Vámíyan*, or the moſt beautiful and excellent city. It is a place of great antiquity; and was conſidered at a very early period, as the metropolis of the ſect of BUDDHA; hence it was called emphatically *Buddha-Bámíyan;* but the *Muſulmans* have maliciouſly diſtorted this venerable title, into *Bút-Bámíyan* or *Bámían* of the evil ſpirit, or of the idols. *Para*, which ſignifies *pure* and *holy*, is alſo one of the thouſand names of VISHNU. *Para* or *Paras* is obviouſly the ſame with the *Latin purus;* for the letter *a* here ſounds exactly like *u* in *murmur* in *Engliſh*. *Para* or *Paras* is for the

 maſculine,

maſculine, *Pará* for the feminine, and *Param* for the neuter genders.

Bámíyan is repreſented in the books of the *Bauddhiſts*, as the ſource of holineſs and purity. It is alſo called *Sharma-Bámíyan* or *Sham-Bámíyan;* for in *Sanſcrit*, *Sharma* and *Shama* are ſynonymous. This is alſo one of the thouſand names of VISHNU, and of the famous patriarch SHEM; by whom, according to the *Bauddhiſts*, *Bámíyan* was built. They ſay, that he was an incarnation of JINA or VISHNU, and the *Bráhmens* in general are of that opinion.

This famous city, the *Thebes* of the eaſt, being hardly known in *Europe*, I beg leave to lay before the Society a ſhort deſcription of it, with an abſtract of its hiſtory.

It is ſituated on the road between *Báblac* and *Cábul*, and they reckon eight *manzils* or days' journey from *Cabul* to *Bámíyan*. From *Cabul* to *Carabaug*, there are four *manzils* N. N. W: from *Carabaug* to the paſs of *Sheybar*, two *manzils*, inclining a little more to the weſt; hence to the fort of *Zohauk* one *manzil*, courſe north-weſt from *Zohauk* to *Bámíyan* one *manzil*. Like *Thebes* in *Egypt*, it is entirely cut out of an inſulated mountain: the valley round it is called, in the language of the country, the *Tágávi* of *Bámíyan*. In this mountainous country, where the valleys alone are inhabited, the word *Tágávi* is become ſynonymous with *Purganah* or diſtrict. To the ſouth of it, or nearly ſo, at the diſtance of about two miles are the ruins of an ancient city, called *Ghulghuleh*, which, according to tradition, was deſtroyed at a very early period by the *Muſulmans*. There are the ruins of ſeveral buildings of maſonry round a ſmall conical hill, on the ſummit of which are the remains of the palace of its ancient kings. A rivulet, riſing in the adjacent hills, goes through the ruins of *Ghulghuleh* and the *Tágávi* of *Bámíyan*, and falls into

into a ſmall lake, from which iſſue four rivers, the *Hirmend*, the *Landhi-Sindh*, the rivers of *Báhlac*, and of *Conduz*.

The city of *Bámíyan* conſiſts of a vaſt number of apartments, and receſſes, cut out of the rock; ſome of which, on account of their extraordinary dimenſions, are ſuppoſed to have been temples. They are called *Samach'h* *, in the language of the country, and *Samaj* in *Perſian*. There are no pillars to be ſeen in any of them, according to the information I have received from travellers, who had viſited them. Some of them are adorned with niches and carved work; and there are to be ſeen the remains of ſome figures in relievo, which were deſtroyed or miſerably disfigured by *Muſulmans*. Some remains of paintings on the walls are ſtill to be ſeen in ſome of them: but the ſmoke, from the fires made there by the inhabitants, has almoſt obliterated them. It is ſaid in the *Ayeen-Akbery*, that there are about 12,000 of theſe receſſes, in the *Tumán* or *Tágávi* of *Bámíyan;* this is alſo confirmed, from general report, by travellers. The country of the *Afghans*, as far as *Báhlac* and *Badacſhán*, abounds with *Samach'hes* or *Samajes:* ſome of them are very rude, whilſt others are highly finiſhed and ornamented. The moſt perfect are at a place called *Móhi*, on the road between *Bámíyan* and *Báhlac:* as they are ſituated amongſt precipices, the *Muſulmans* have never thought of living in them, and the paintings, with which they are adorned, look quite freſh.

But what never fails to attract the notice of travellers, are two coloſſal ſtatues, which are ſeen at a great diſtance. They are erect, and adhere to the mountain, from which they were cut out. They are in a ſort of niches, the depth of which, is equal to the thickneſs of the ſtatues. It is ſaid,

* This word is ſpelt *Samachch'h* by the natives.

that

in the *Ayeen-Akbery*, that the largeſt is eighty ells high, and the other only fifty. Theſe dimenſions are greatly exaggerated, according to the opinion of all the travellers I have ſeen, and the diſproportion is not ſo great between the two. According to the author of the *Pharangh-Jehanghiri* cited by TH. HYDE* they are ſaid to be only fifty cubits high; which appears to be the true dimenſions. At ſome diſtance from theſe two ſtatues, is another of a ſmaller ſize, being about fifteen cubits high. Natives and *Perſian* authors, who have mentioned them, agree neither about their ſex nor their names. The few *Hindus*, who live in theſe countries, ſay, that they repreſent BHI'M and his conſort: the followers of BUDDHA, that they are the ſtatues of SHA'HA'MA', and his diſciple SA'LSA'LA'. The *Muſulmans* inſiſt, that they are the ſtatues of KEY-UMURSH and his conſort, that is to ſay, ADAM and EVE; and that the third is intended for SEISH or SETH their ſon; whoſe tomb, or at leaſt the place where it ſtood formerly, is ſhewn near *Báhlac*. This is in ſome meaſure confirmed by the author of the *Pharangh-Jehanghiri*, who ſays, that theſe ſtatues exiſted in the time of NOAH; though he gives them different names, and ſuppoſes the third to repreſent an old woman, called NESR, more generally repreſented with the countenance of a vulture. Theſe ſtatues are ſo much defaced, through the injury of all-devouring time, and the intolerant zeal of the *Muſulmans*, that I believe it is difficult to aſcertain their ſex. Travellers do, however, agree that one of them at leaſt is a beardleſs youth; ſome more particularly inſiſt that the ſwelling of the breaſts is remarkably obvious, and that both look towards the eaſt, ſo that, when the ſun riſes, they ſeem to ſmile, but look gloomy in the evening. Their dreſs, as deſcribed to me, is much the ſame with that of the two figures, half buried at *Tuct-Ruſtum* near *Iſtacar* in *Perſia;* with this difference, that the female figure has no head-dreſs; but the male has ſuch a *tiara* as is worn by the ſuppoſed female figure at *Tuct Ruſtum*.

* P. 132.

Theſe ſtatues were viſited, at leaſt ten or twelve different times, by a famous traveller, called ME'YAN-ASOD-SHAH, who is a man highly reſpected, both on account of his deſcent from MOHAMMED, and his perſonal character. He is well informed, in affluent circumſtances, through the piety of the faithful, and keeps company with the princes of the country and perſons of the firſt rank. He informed me lately, that theſe two ſtatues are in two different niches, and about forty paces diſtant from each other. That the drapery is covered with embroidery and figured work; which formerly was painted of different colours; traces of which are ſtill viſible. That one ſeems to have been painted of a red colour: and the other, either retains the original colour of the ſtone, or was painted grey. That one certainly repreſents a female, from the beauty and ſmoothneſs of her features, and the ſwelling of her breaſts: the head being ſo much elevated is ſecure from inſult below, and is alſo protected from the weather by the projection above. The ſtatue of their ſuppoſed ſon is nearly half a mile diſtant, and about twenty feet high. One of the legs of the male figure is much broken: for the *Muſulmans* never march that way with cannon without firing two or three ſhots at them: but from their want of ſkill, they ſeldom do much miſchief. AURANGZEBE, it is ſaid, in his expedition to *Báhlac*, in the year 1646, paſſed that way and ordered as uſual a few ſhots to be fired; one of them took place, and almoſt broke its leg, which bled copiouſly. This, and ſome frightful dreams, made him deſiſt, and the clotted blood it is ſaid adheres to the wound, to this day. The miracle is equally believed by the *Hindus*, and *Muſulmans*: the former attribute it to the ſuperior power of the deity; and the latter to witchcraft. According to Dr. HYDE, one of theſe ſtatues is called *Surkh-But*, or the red idol; the other *Khink-But*, or the grey idol. As to their being hollow, I believe, it is an idle tale: at leaſt the travellers, I have conſulted, knew nothing of it. Between the legs of the male figure, is a door leading into a moſt ſpacious temple,

ple, the dimenſions of which, they could not deſcribe otherwiſe, than by ſaying, that it could eaſily hold the camp equipage and baggage of ZEMAN-SHAH, and of his whole army. It is remarkable only for its extraordinary dimenſions: it is dark and gloomy; and there are a few niches, with the remains of ſome figures in *alto-relievo*. At the entrance are ſtationed a few wretched *Banyans*, who ſell proviſion to travellers. The greateſt part of the *Samajes* in *Tágávi Bámíyan* are ſtill inhabited by *Muſulmans*, who live promiſcuouſly with their cattle. I have been informed, that there are no other ſtatues, than theſe three; but, from the numerous fragments, which are ſeen through the *Tágávis*, there muſt have been ſeveral hundreds of them. They ſhew to this day the *Samach'h*, in which the famous VYA'SA compoſed the *Védas*; and others, where divers holy men gave themſelves up to meditation, and the contemplation of the Supreme Being.

Perſian authors are conſtantly confounding *Bámíyan* and *Báhlac* together; the firſt they call *Bálkh-Bámíyan*, and the ſecond *Bálkh-Bokhárá*; when they ſpeak of the metropolis of the fire worſhippers, it is to be underſtood of *Bámíyan* alone, according to the followers of BUDDHA, and the author of the *Buddha-dharmachárya Sindhu*. According to *Perſian* authors, *Bámíyan* muſt have exiſted before the flood; but the followers of BUDDHA inſiſt, that it was built by a moſt religious man called SHAMA, who appears from particular circumſtances to be the ſame with the famous patriarch SHEM; and that his poſterity lived there for ſeveral generations. Hence *Bálkh-Bámíyan* is ſaid to have been originally the place of abode of ABRAHAM*, who, according to ſcripture, and the *Hindu* ſacred books, removed with his father to diſtant countries to the weſtward.

* TH. HYDE, p. 29 and 494.

According to DIODORUS the *Sicilian*, *Bámíyan* exiſted before NINUS: for this hiſtorian, like the *Perſian* authors we have mentioned, has miſtaken *Báhlac* for *Bámíyan*; which he deſcribes as ſituated among ſteep hills: whilſt *Báhlac* is ſituated in a low, flat country, and at a great diſtance from the mountains.

The natives look upon *Bámíyan*, and the adjacent countries, as the place of abode of the progenitors of mankind, both before and after the flood. By *Bámíyan* and the adjacent countries, they underſtand all the country from *Siſtân* to *Samarcand*, reaching towards the eaſt as far as the *Ganges*. This tradition is of great antiquity, for it is countenanced equally by *Perſian* authors, and the ſacred books of the *Hindus*. The firſt heroes of *Perſian* hiſtory lived, and performed there, innumerable achievements. Their ſacred hiſtory places alſo, in that country, their holy inſtructers, and the firſt temples that were ever erected. In the prefatory diſcourſes, prefixed to the *Puránas*, and which appear to have been added by a more modern hand, a general deſcription of the whole world is inſerted, which one would naturally ſuppoſe to be extracted from that *Purána*, to which it is annexed: but the reverſe is actually the caſe: for it has no affinity whatever with ſuch geographical notions as are to be found, occaſionally, in that *Purána*. In theſe prefaces, if we may call them ſo; it is ſaid, that SWAYAMBHUVA or ADAM lived in the *dwíp* of PUSCARA, at the furtheſt extremities of the weſt. There ſeven ſons were born unto him, who divided the world or *ſeven iſlands* among themſelves.

This notion ſeems alſo to be admitted in the *Trelociderpana*, by the *Bauddhiſts*, who give the name of *Jambu* to PUSCARA: for by *Jambu* is underſtood the *continent*. PLUTARCH alſo ſays that the inhabitants of *Egygia*, which is probably the *dwíp* of PUSCARA, conſidered their own country as the continent. Be this as it may, I have never

never ſound in the *Puránas* any paſſage, except one, that could in the leaſt countenance ſuch an idea. The paſſage alluded to, I diſcovered ſome days ago, in a legend in which it is ſaid, that the father of SATYAVRATA or NOAH, was born on the banks of the river *Chandra-bhága* in the *dwíp* of CHANDRA, which is one of the *ſacred iſles* in the weſt. There is certainly a river of that name in *Chandra-dwíp*, even more famous in the *Puránas*, than another of that name in the *Panjáb*, and which is now called the *Chináb*. It is highly probable, that the words *Chandra-dwíp* are an interpolation by ſome of the ignorant compilers of the *Puránas*, who have arranged this heterogeneous maſs without method, and ſtill leſs judgment: for in this ſame legend from the *Scanda purána*, SATYAVRATA or NOAH, is ſaid to have left the banks of the *Chandra-bhága*, at the head of a numerous army, in order to invade the country of *Dravira*, or the peninſula of *India*, which he conquered and annexed to his dominions.

Bhálac or *Bámíyan* are both ſituated in the country of *Váhlica* or *Váhlaca*; and as *Bámíyan* was once the capital, it is poſſible, it might have been called alſo *Váhlica* or *Bhálac*. The origin of this appellation is rather obſcure: it is however the general opinion, that it is derived from the plant, which produces *Aſſa-fœtida*, called in *Sanſcrit Váhlica*, and is the *Silphium* of the hiſtorians of ALEXANDER. It grows there in great abundance, and is reckoned ſuperior to that of other countries. Others inſiſt, that this plant was thus denominated from its growing in the country of *Válica*, which, they ſay, was thus called from a certain ſage of that name, who lived there: this is countenanced by CEDRENUS, who ſays that PELEG, whom he calls PHALEC, dwelled in the country of *Bactra*, which ſeems to be derived from the *Sanſcrit Váhlicter* or *Balc-ter*, which ſignifies the country about *Váhlica*, or *Balk*. Thus the country of the *Byltæ*, called *Baltiſtan*, is generally called by natives *Balut-ter*. Derivatives of this ſort, though not pure *Sanſcrit*, are how-

ever

ever very common all over *India:* thus they ſay *Jun-gul-tery*, or country about woods and foreſts. *Shivauter*, *Brahmauter*, *Viſhnauter*, &c. imply a piece of ground, or a diſtrict belonging to SHIVA, &c. or ſet apart for his worſhip. In *Sanſcrit*, the compound *Váhlica-tiram* or *Váhlic-tir*, would ſignifiy the country on the banks of the river *Váhlica*. *Bámyían*, as well as *Cabul* and *Bálikh*, were at an early period in the hands of the *Muſulmans*. There were even kings of *Bámíyan:* but this dynaſty laſted but a few years and ended in 1215. The kings and governors reſided at *Ghulghuleh*, called at that time, the fort or palace of *Bámíyan*. It was deſtroyed by GENGHIZ-KHAN, in the year 1221; and becauſe the inhabitants had preſumed to reſiſt him, he ordered them to be butchered, without diſtinction, either of age or ſex: in his rage, he ſpared neither animals, nor even trees. He ordered it to be called in his own language *Mau balig*, or the city of grief and ſorrow: but the inhabitants of that country, called it in their own dialect *Ghulghuleh*, which word, uſed alſo in *Perſian*, ſignifies *the cries of woe*. To have rebuilt it, would have been ominous: for this reaſon, they erected a fort on a hill to the north of *Bámíyan*, which is called to this day, the imperial fort. This fort alſo was deſtroyed by ZINGIS the *Uſbeck*, in the year 1628; and has not been rebuilt ſince.

According to the *Puránas*, SWAYAMBHUVA, or ADIMA, SATYAVRATA or NOAH, lived in the north-weſt parts of *India* about *Caſhmir*. There BRAHMA' aſſumed a mortal ſhape according to the *Matſya-Purána;* and one half of his body ſpringing out, without his experiencing any diminution whatſoever, he framed out of it SATARUPA'. She was ſo beautiful, that he fell in love with her. As he conſidered her as his daughter, being ſprung from his body, he was aſhamed. During this conflict between ſhame and love, he remained motionleſs, with his eyes fixed on her. SATARUPA perceiving his ſituation,

ſituation, and in order to avoid his looks ſtepped aſide. BRAHMA' unable to move, but ſtill deſirous to ſee her, a face ſprang out upon him, toward her. Thus ſhe ſhifted her place four times round him, according to the four corners of the world; and four faces grew up to his head. Having recovered his intellects, the other half of his body ſprang from him and became SWAYAMBHUVA or ADIMA. SWAYAMBHUVA literally SWAYAMBHU-like ſignifies, that BRAHMA' or SWAYAMBHU appeared in an aſſumed form, called from that circumſtance SWYAMBHUVA. The poſſeſſions of CARDAMES'WARA were in the hills along the banks of the *Ganges*, to the eaſtward of the reſt of mankind. His ſon CAPILA, a moſt religious man, performed for a long time religious auſterities near *Hardwar*, where they ſhew to this day the place where he lived, under the name of *Capila-ſthán*: hence the paſs of *Hardwar* is ſometimes called the paſſes of CAPILA or KUPELEH.

CARDAME'S'WARA is the deſtructive power united to a form of clay: ISWARA attempted to kill his brother BRAHMA', who being immortal, was only maimed: but IS'WARA finding him afterwards in a mortal ſhape in the character of DACSHA, killed him, as he was performing a ſacrifice. CARDAME'SWARA is then obviouſly the CAIN of ſcripture, and of courſe CAPAIL is his ſon ENOCH, and *Capila-ſthán* is probably the city *Enochia* thus called after him. The *Muſulmans* ſeem to have borrowed from the *Hindus* the appellation of CAPILA or CA'BIL, which they give to CAIN, who is ſometimes called CAPILE'SWARA in the *Puránas*; being an incarnation of MAHA'-DEVA; ENOCH was an incarnation of VISHNU, and is always called CAPILA-MUNI. CAPILE'SWARA was a *Muni* alſo; hence he is ſometimes called, though improperly, CAPILA-MUNI; which inaccuracy has occaſioned ſome confuſion in the *Puránas*. CAPILA-MUNI, is repreſented as a moſt religious penitent, though ſomewhat cholerick, and HENOCH or C'HA-

2 NOCH,

NOCH, for ſuch is his name in *Hebrew*, implies that he was conſecrated to GOD, and for ever devoted to his ſervice.

CAPILA or CAPILA-MUNI, that is to ſay, CAPILA the ſilent contemplator, is generally found making *tapaſya* at the mouths of rivers. Though found at ſeveral places at the ſame time, he is but one. Near *Hardwar* is *Capila-ſthán*, where he made his firſt appearance. His father and mother were exceedingly happy when he was born; as they conceived him to be a gift, and alſo an incarnation of VISHNU, the preſerving power; and they hoped, that he would preſerve and comfort them. There at *Capila-ſthán*, he was conſulted by his mother the devout DEVAHUTI, daughter of SWAYAMBHUVA, about the ſureſt and beſt method to obtain *Mocſha* or re-union to the Supreme Being. The exhortations of CAPILA, and his wiſe admonitions, are related in the *Bhagavat* and other *Puránas*. DEVAHUTI withdrew afterwards to the foreſts on the banks of the *Bindu-Sarovara* lake, from which iſſues the *Ganges*; and is improperly called *Man Sarovara*. There ſhe performed *tapaſyas* for a long time, and was ultimately reunited to the Supreme Being, never to be born again.

In that country, on the banks of the *Chinab*, in the hills, was performed that famous ſacrifice, which occaſioned the death of ABEL, according to the *Scanda-purána*: an account of which, from the *Hindu* ſacred books, I beg leave to lay before the Society, as, moſt probably, I ſhall not have an opportunity to reſume this ſubject hereafter.

There had ſubſiſted, for a long time, ſome animoſity between BRAHMA and MAHA'-DE'VA in their mortal ſhapes; and the latter on account of his bad conduct, which is fully deſcribed in the *Puránas*, had, it appears, given much uneaſineſs to SWAYAMBHUVA and SATARUPA'. For he was libidinous, going about ſtark naked, with

with a large club in his hand. Be this as it may, MAHA'-DE'VA, who was the eldeſt, ſaw his claim as ſuch, totally diſregarded, and BRAHMA' ſet up in his room: this intruſion the latter wanted to ſupport; but made uſe of ſuch lies as provoked MAHA'-DE'VA to ſuch a point, that he cut off one of his heads in his divine form. In his human ſhape we find likewiſe DACSHA boaſting, that he ruled over mankind. One day in the aſſembly of the Gods, DACSHA coming in, they all roſe to pay their reſpects to him: but MAHA'-DE'VA kept his ſeat, and looked gloomy. DACSHA reſented the affront, and after having reviled MAHA'-DE'VA, in his human ſhape, curſed him; wiſhing he might remain always a vagabond, on the face of the earth, and ordered he ſhould be carefully avoided; and deprived of his ſhare of the ſacrifices and offerings. MAHA'-DE'VA irritated, in his turn curſed DACSHA, and wiſhed he might die; a dreadful conflict took place between them, the three worlds trembled, and the Gods were alarmed. BRAHMA', VISHNU, and the whole aſſembly interfered and ſeparated the combatants, who returned to their reſpective homes. They even effected a reconciliation, in conſequence of which DACSHA gave one of his daughters, called SITA' in marriage to MAHA'-DE'VA. SITA' was an incarnation of DEVI': for SRI'-DE'VI' the wife of DACSHA, and daughter of ADIMA and IVA, entreated the Goddeſs, to give her one daughter exactly like herſelf: her requeſt was granted, and DEVI' was incarnated in her womb. She was bleſſed alſo with an hundred daughters more. One day, as DACSHA was ſitting with his wife, they both lamented that they had no male offspring. I command over the world, ſays DACSHA, great is my power and my wealth: but I have no ſon. They agreed to make a ſolemn ſacrifice, in order to obtain one; on this occaſion DACSHA convened gods and men; but he could not be perſuaded to invite MAHA'-DE'VA: who took little notice of this neglect; for he is repreſented in all his *Avatáras*, as perfectly indifferent either to praiſe or abuſe. But his wife was

was enraged; and insisted on her going. MAHA'-DE'VA did what he could to dissuade her from it, but in vain. She was treated with such contempt by her father, that, in a rage, she flung herself into the sacred fire, and thereby spoiled the sacrifice. MAHA'-DE'VA hearing of this, blamed her for her rash conduct, in thus spoiling the religious performance, and cursed her. In consequence of this curse, and for her improper behaviour, she was doomed to be born again, and to transmigrate for a thousand years into an inferior being. Thus she became a *Picá:* but MAHA'-DE'VA to please her, assumed the shape of a *Pica* or *Picas* under the title of PICE'SWARA or PICE'SA-MAHA'-DE'VA. He is more generally known by the name of COCILE'S'WARA-MAHA'-DE'VA: *Cocila (Cuculus)* being another name for the bird *Pica* or *Picas**.

MAHA'-DE'VA afterwards went up to BRAHMA', in the character of DACSHA; and after a great deal of abuse, began to beat him; the confusion became general in the whole assembly, who all took the part of DACSHA: but SIVA striking the ground with the locks of his *Jata*, produced two heroes, and a whole army of demons came to his assistance; the battle raged, and during this general conflict MAHA'-DE'VA cut off DACSHA's head: several of the Gods were wounded, particularly the Sun and Moon; Heaven, Hell, and the Earth trembled.

The Gods at last humbled themselves before MAHA'-DE'VA, who was appeased; and order was re-established through the whole assembly. The Gods requested MAHA'-DE'VA to restore DACSHA to life, which he promised to do; but the head could not be found, for dur-

* *Pica* in *Sanscrit* is the name of the *Cuckoo:* but it was once taken in a more extensive sense; for we read in glossaries, that *Pica* is the name of such birds as *pick* their food out of holes. In this sense the bird *Picus* is certainly a *Pica*. The root of the word *Picus* is lost in *Latin*, but it is preserved in *Gothick* and most of its dialects.

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ing the fray, it fell into the fire, and was burnt. They brought a he-goat, whoſe head they cut off, and placed upon the lifeleſs corpſe of DACSHA; who inſtantly revived: but he remained weak and without power till he was born again a ſon of NOAH.

MAHA'-DE'VA then took up the body of his beloved SITA' on his ſhoulders, and went ſeven times round the world, bewailing his misfortune. Here I ſhall remark that, when any accident happens to the Gods, they generally ſet off at full ſpeed, going ſeven times round the world, howling all the way moſt woefully.

The gods, whom SITA' contained in her womb, burſt out, her limbs were ſcattered all over the world; and the places, where they fell, are become ſacred. Her breaſts fell near *Jalánder* in the *Panjab;* the *yoni* into *A'ſam*, and the *guhya** into *Nepál*, where they are moſt devoutly worſhipped to this day. The latter is a ſmall cleft in a rock, with an intermitting ſpring: it is called *Guhya-ſthán.*

Puja, with offerings, are directed to be made to PICE'SA, whenever there happens to be in the year two months of *'Aſha'd'ha*, the ſecond of which, is emboliſmic. The firſt *'Aſha'd'ha*, is reckoned impure, and the religious rites are to begin on the day of the full moon, if poſſible: if not on the third or ſeventh day. For this purpoſe an image of the *Picas* is to be made; the body of gold, the wings of precious ſtones, the beak of red coral, and the eyes alſo of a precious ſtone of a red colour, called *manica*. Women particularly ought to be cautious not to omit this religious performance, on any account whatever; ſhould any woman fail in this, ſhe will be born a *Vyali* (a ſnake) in the foreſts. Whatever woman performs it duly, will have many

* Podex.

children

children, and her huſband ſhall not die before her: for PA'RVATI is highly delighted with prayers and offerings in that intercalary month. PICE'SA MAHA'-DE'VA is probably the JUPITER PICUS of the *Latians*: ſome pretend that this metamorphoſis happened in *Syria*, others in *Italy*: but the *Hindus* inſiſt that it happened in the mountains to the north of the *Pánjáb*. Though PICUS be ſaid to have appeared in the time of ADIMA; yet as, according to the *Puránas*, the ſame concatenation of events reappears in every *Manwantara*, the ſame ſtory muſt have happened of courſe in the time of SATYAVRATA, OR NOAH.

In the *Purânas*, the *Ganges* is repreſented as remaining concealed for a long time in the hills; at the prayers of a certain holy man it entered the plains of *Hinduſtan* till it reached *Benares*: then gradually advancing, it found at laſt its way into *Bengal*. As the whole country from *Hardwar* to the ſea was annually overflowed in ſuch manner as to render the greateſt part of it unfit for cultivation, *Bhagirat'ha* reſtrained the inundation between certain limits. The *Chineſe* relate the ſame ſtory of FOHI, who ſurveyed the courſe of the *yellow river* to its ſource, and by proper inbankments, reſtrained its deſtructive overflowings. CAPILA, always fond of the ſea ſhore, followed the *Ganges*: we find him afterwards meditating near a place called *Mooragatcha* in Major RENNELL's Atlas, to the ſouth of *Calcutta*, not far from *Fulta*, and at that time cloſe to the ſea. Here he was inſulted by the children of SA'GARA, whom he reduced to aſhes by a ſingle look: this place is called the *old Ságar*, and is probably the place called *Oceanis* by DIODORUS the *Sicilian*, for *Ságara* and *Oceanis* are ſynonymous words. There the *Ganges* ſeeing *Samudr* or *Oceanus* was frightened, and fled back through a thouſand channels: thus the *Pauránics* account for the retrograde motion of the waters of the *Ganges* twice a day.

CAPILA

Capila is now performing *Tapaſya* at *Ságar* iſland, where his *ſthán* or *place*, is about five miles from the ſea; the *Delta* of the *Ganges* having thus far encroached upon the ſea, ſince the erection of this laſt *ſthán*. Cardame'swara is thus called, when conſidered as a divine emanation from Iswara, but he ſeems to be Priyavrata, when conſidered as a mortal. For whenever the deity condeſcends to be born of woman; the perſon is one, but there are two natures. To this diſtinction we muſt carefully attend, in order to reconcile many ſeeming contradictions in the *Puránas*; and more particularly ſo, with reſpect to Vaivaswatá and Satyavrata; who are acknowledged to be but one perſon: the divine nature is an emanation of Vishnu in his character of the *Sun*; and Satyavrata is the human nature; theſe two natures often act independently of each other, and may exiſt at the ſame time in different places.

From particular circumſtances it appears, that Satyavrata before the flood lived generally in the countries about the *Indus*, between *Cabul* and *Caſhmir*; and if we find him in *Dravira* or the ſouthern parts of the peninſula, it ſeems that it was accidentally, and that he went there only for ſome religious purpoſes. Even after the flood, he reſided for ſome time on the banks of the *Indus*. According to tradition, which my learned friends here inform me is countenanced by the *Puránas*, he lived and reigned a long time at *Bettoor*, on the banks of the *Ganges* and to the ſouth of *Canoge*. In the *Varaha-purána*, Vasu, the father of Vivaswata, is declared to have been king of *Caſhmir*, and the adjacent countries. They ſhew to this day the tomb of his father Lamech, as mentioned in the *Ayeen Akbery*, at at place called *Naulakhi*, between *Aliſhung* and *Munderar*; about twelve or thirteen miles to the north-weſt of *Jalálábád* in the country of *Cabul*. The *Muſulmans* called him Peer Maitlam; and in the dialect of *Samarcand*, *Maiter* or *Maitri* Bur-kha'n. The *Bàuddhiſts* ſay, that it is Budd'ha-Nara'yana, or Buddha dwelling

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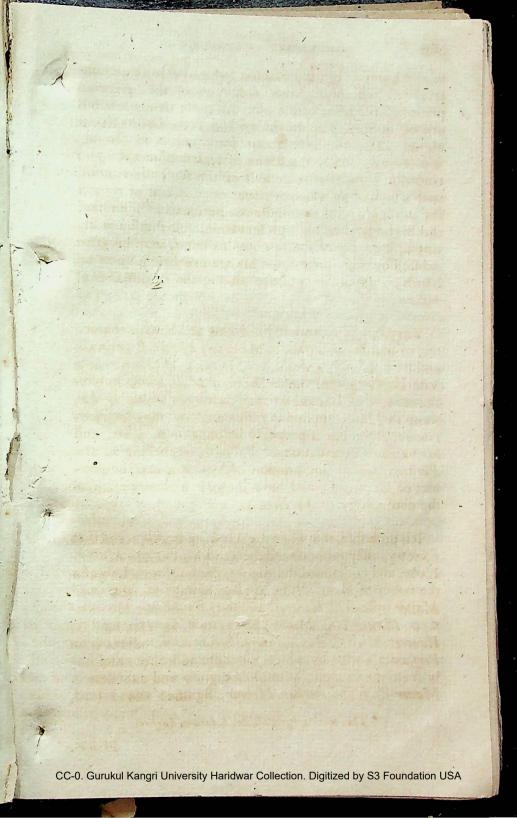
in the waters: but the *Hindus*, who live in that country, call him MACH'HODAR-NATH* or the ſovereign prince in the belly of the fiſh. All theſe denominations are by no means applicable to LAMECH; but to NOAH alone. The tomb is about forty cubits in length: which was actually the ſtatue of LAMECH according to tradition: under it is a vault of the ſame dimenſions, with a ſmall door which is never opened, out of reſpect for the remains of this illuſtrious perſonage. They ſay, that his body is in high preſervation, and that he is ſitting in a corner of the vault on his heels, with his arms croſſed over his knees, and his head reclining upon his hands; a favourite poſture among the inhabitants of *India*.

VAIVASWATA, both in his divine and human character, or nature, is certainly, MAITLA, *Maiter*-BURKHA'N and BUDDH'A-NARA'YANA. MAITLA or MAITLA'M is a derivative form from the *Sanſcrit Mait*, which implies the conſort of LACSHAMI', and the owner of her wealth, an epithet often applied to rich men; and may be tranſlated *mighty*: but it properly belongs to VISHNU, and his various incarnations. PRĬTHU, according to the *Purànas*, was an incarnation of VISHNU, and the conſort of LACSHMI'; as I have ſhewn in a former eſſay on the chronology of the *Hindus*.

It is probable, that when the *Muſulmans* conquered that country, they pronounced the word MAITLA'M *Maiter*-LA'M; and concluded that he was the ſame with LAMECH the father of NUH. The *Afghans* always uſe the word *Maiter* inſtead of *Hazeret*, and thus ſay *Maiter* MOHAMMED, *Maiter* ISA, *Maiter* SOLEIMAN, for *Hazeret* ISA, *Hazeret* MOHAMMED, *Hazeret* SOLEIMAN. *Hazeret* in *Perſian* is a title, by which kings are addreſſed, and holy men mentioned; it implies dignity and excellence. *Maiter* from the *Perſian Mehtur*, ſignifies alſo a lord,

* This word is ſpelt *Machch'hodara* in *Sanſcrit*.

prince,

prince, or chief. The *Muſulmans*, and *Hindus* of that country, I had an opportunity to conſult, informed me, that according to tradition, the famous Sultan MAHMOOD, of *Ghazni*, hearing of the tomb of MAITLA'M; and of the miracles daily performed there, conceived that the whole was done through magick; and accordingly reſolved to deſtroy it: but, being diſturbed by frightful dreams, he deſiſted, and having made particular inquiries about MAITLA'M, he was fully ſatisfied, as well as the learned about his perſon, that he was LAMECH, the father of NUH. Since that period MAITLA'M is revered as a *Peer*, or ſaint, by the *Muſulmans* of that country. *Maiter* BURKHA'N, or BURGHA'N, in the dialect of *Samarcand*, as I am informed, ſignifies, literally, *the lord and maſter*. In ſeveral *Tartarian* dialects, GOD is called BURKHA'N, or the lord.

The title of MACH'HODAR-NA'T'HA is by no means applicable to LAMECH; but properly belongs to NOAH; for by the *belly* of the *fiſh* they underſtand the *cavity*, or *inſide* of the ark. There is a place under ground at *Banares*, which they call *Mach'hodara*. The centrical and moſt elevated part of *Banares*, is alſo called *Mach'hodara*, becauſe, when the lower parts of the city are laid under water by ſome unuſual overflowing of the *Ganges*, this part remains free from water like the belly of a fiſh. The city alſo is ſome times thus called, becauſe, during the general floods, the waters riſe like a circular wall round the holy city. In ſhort, any place in the middle of waters, either natural or artificial, which can afford ſhelter to living beings, is called *Mach'hodara*.

The place, where LAMECH is ſuppoſed to lie entombed, is called *Naulakhi*, a word, which ſignifies nine lakhs; becauſe, it is ſaid, Sultan MAHMOOD granted to this holy place a yearly revenue of nine lakhs of rupees. Be this as it may, this foundation no longer exiſts: and I believe it never did. The real name is probably

Nau-Laca, or *Nuh-Laca*, which in the language of that country, implies the place of Nuh or Noah: at leaſt there are many places in that country, the names of which end in *Laca or Laki*, ſuch as *Ebau-iac*, *Gauza-lac*, &c.

Cloſe to *Ayudhya* or *Oude*, on the banks of the *Gagra*, they ſhew the tomb of Noah and thoſe of Ayub, and Shis or Sish (Job and Seth). According to the account of the venerable *Derveiſh*, who watches over the tomb of Nuh, it was built by Alexander the Great, or Secunder Rumi. I ſent lately a learned *Hindu*, to make enquiries about this holy place: from the *Muſulmans*, he could obtain no further light: but the *Bráhmens* informed him that where Nuh's tomb ſtands now, there was formerly a place of worſhip dedicated to Ganesa, and cloſe to it are the remains of a *Bowly*, or walled well, which is called in the *Puranas Gana-put cunda*. The tombs of Job and Shis are near to each other; and about one bow ſhot and a half from Nuh's tomb; between them are two ſmall hillocks, called *Soma-giri*, or the mountains of the moon. According to them theſe tombs are not above four hundred years old; and owe their origin to three men, called Nuh, Ayub, and Shis, who fell there, fighting againſt the *Hindus;* theſe were of courſe conſidered us *Shéhids* or martyrs: but the prieſts, who officiate there, in order to encreaſe the veneration of the ſuperſtitious and unthinking crowd, gave out that theſe tombs were really thoſe of Noah, Job, and Seth of old. The tomb of Nuh is not noticed in the *Ayeen-Akbery*, only thoſe of Ayub and Shis.

Mach'ho'dara-Na't'ha is not unknown in *China;* at leaſt there is an idol near *Pechin (Pekin)*, which is ſuppoſed by pilgrims from *India* and *Tibet*, to repreſent Mach'ho'dara or *Maitre*-Burgha'n. This account I received from a famous traveller called Arce'swara, who was introduced to my acquaintance by Mr. Dun-

CAN* three years ago. He ſaid, that the *Myau* or temple, is at a ſmall diſtance from the north-weſt corner of the wall of *Pechin*, and is called *Mahá-Cála-Myau*, from its chief deity MAHA'-CA'LA, who is worſhipped there, and whoſe ſtatue is on one ſide of the river, and the *Myau* on the other. That in one part of the *Myau* is a gilt ſtatue of MACH'-HO'DARA-NA'TH, about eighteen feet high: in another part is the *Cháran pad*, or the impreſſion of the feet of DATTA'TRE'YA or DATTA, called TOTH by the *Egyptians*. There is a convent and a *Lama*. What are the *Chineſe* names of theſe deities, he could not tell. This aſtoniſhing traveller firſt viſited the moſt famous places of worſhip in the northern parts of *India*, as far as *Băhlk*, and the borders of *Perſia*. Though a *Bráhmen*, he had a regard for the worſhip of JINA, and renouncing his tribe, he reſolved to viſit the living FOHS. I ſhall here exhibit the outlines of his peregrinations, which are as accurate as can reaſonably be expected from a man who declares, that he did not travel for the purpoſe of geographical information, and who never imagined he ſhould be requeſted to give an account of his travels.

According to ARCE'SWARAS account.	According to the maps of the *Jeſuits.*
From *Benares* to *Nepál* - -	*Nepál*
Laſſa - - - -	*Laſſa*
Chéri, ſouth-eaſt of *Laſſa* - -	*Dſiri*
Country of *Letanh* - -	*Laton*
Then turning toward the weſt, he entered the country of *Combo*, where he adorned the LAMA'-COMBO -	See Alphab. *Tibet*. p. 423.
to *Sámá-Jerbu* - - -	Bridge of *Sama*.

* JONATHAN DUNCAN, Eſq. now governor of *Bombay*.

to *Caucáſu* - - -	*Cocoſay* cuſtom-house.
Country of *Jéſbrám*	
Silin - - -	*Sinin.*
Croſſed the *Hárá-Móren* and entered the country of *Urduſu*, which he deſcribes as flat and abounding with lakes and marſhes,	*Urtous.*
Croſſed again the *Hara-Moren*, and entered the country of *Urát*,	*Urat.*
Then turning to the north-weſt, he entered the country of a famous *Kalka* chief, called BHA'GA'-GU. Thence into the country of the *Tolen-cáſu-Kalkas;* thus called from the river on the banks, of which they live,	*Tola-pira* or river *Tolá.*

He went afterwards to pay his adorations to the TA'RA'NA'TH, the place of whoſe reſidence is marked in the maps between the rivers *Selinghei* and *Orgun*. This living FOH is well known in the northern parts of *India*, under the name of TA'RA'NA'TH, and is mentioned in BELL's travels.

In three months he went into the country of *Chitcár-Naymánn-cáſu*, in the maps *Teitcicár* and *Naymann*. Thence to *Tálá-Nor*, the *Taal-Nor* of the maps. He then entered *China*, through the breach made in the great wall, for the conveyance of the remains of the emperors to their place of burial, which he ſays is called *Ekhor* by the *Tartars*, and *Séchin* by the *Chineſe:* thence to *Pekin* called by the *Chineſe Péchin*. He returned from his expedition about three years ago, and ſhewed to Mr. DUNCAN and to me the numerous *Rahdáres* or paſſports he obtained from the various chiefs and *Lamas* he had viſited. They are written in the characters of the countries he went through, namely of *Tibet*, the *Mungul Tartars*,

and

and of *China.*' He is now gone to visit the places of worship in the southern parts of *India;* after which he intends to come and die at *Benares.* A near relation of his is in my service as a pandit.

It may appear strange, that the posterity of CAIN should be so much noticed in the *Puránas*, whilst that of the pious and benevolent RUCHI is in great measure neglected: but it is even so, in the *Mosaical* account of the antediluvian history: where little is said of the posterity of SETH; whilst the inspired penman takes particular notice of the ingenuity of the descendants of CAIN, and to what high degree of perfection they carried the arts of civil life. The charms and accomplishments of the women are particularly mentioned. *The same became mighty men, which were of old, men of renown.* The antediluvian history of SANCHONIATHON is obviously that of the posterity of CAIN. We have been taught to consider the descendants of CAIN, as a most profligate and abominable race: this opinion, however, is not countenanced, either by sacred or profane history. That they were not intrusted with the sacred deposit of religious truths to transmit to future ages, is sufficiently certain: they might in consequence of this, have deviated gradually from the original belief; and at last fallen into a superstitious system of religion, which seems also a natural consequence of the fearful disposition of CAIN, and the horrors he must have felt, when he recollected the atrocious murder of his brother. Be this as it may, their worldly achievements passed to posterity, whilst the peaceful and domestick virtues of the descendants of SETH sunk into oblivion. Out of five MENUS, who ruled as lords paramount between ADIMA and the flood, according to the *Puránas*, four were of the posterity of CAIN.

Thus, according to an uniform tradition, of a very long standing, as it is countenanced by the *Hindu* sacred books, and *Persian* authors, the progenitors of mankind lived

lived in that mountainous tract, which extends from *Bálkh* and *Candáhár* to the *Ganges;* we may then reasonably look for the terrestrial paradise in that country; for it is not probable, that ADIMA and ADIMA' or IVA should have retired to any great distance from it. Accordingly we find there such a spot, as answers minutely to the *Mosaical* account; a circumstance, I believe, not to be met with any where else on the surface of the globe. A small brook winds through the *Tágávis* of *Bámíyan*, and falling into a small lake, divides itself into four heads, forming so many navigable rivers. The first called *Phison* compasses the whole country of *Chávilá*, where gold is found: and the gold of that country is good: there is also *Bdellium* and *Sardonyx*. The country of *Chávilá* is probably that of *Cabul:* it is a very ancient denomination; for PTOLEMY calls its inhabitants *Cabolitæ*, and the town itself *Cabura*, which is obviously a corruption from *Cabul;* for the *Persian* name for a *shed* or *penthouse* is indifferently pronounced *Cabul* and *Cabur*. Tradition says, that *Cabul* was built by an ancient king of that name; and the place where he lived, is still shewn near *Cabul:* they generally call him SHAH CABUL. Gold is found in the sands of the *Indus*, above *Derbend*, but in greater quantity about *Cábul-grám*, to the north of *Derbend*, and in the rivers, which fall into the *Indus* from the west. It is found also near the surface of the earth in these parts, but the natives are too indolent to dig for it. The gold found in the sands, I am told, is not so pure as that found by digging the earth to a considerable depth. This country abounds with divers sorts of precious stones, such as the *Lapis Lazuli*, the *Yacuth* or hyacinth, crystal, marble of various colours, and razor stones of a superior quaility. The *Phison* appears then to be the *Landi-Sindh*, or lesser *Sindh*, called also *Niláb* from the colour of its waters, which are deep and limpid. This river is also denominated the *Nilá-Gangá*, or simply *Gangá* by *Hindus;* and it is called *Ganges* by ISIDORUS, when he says that the best *Assa-fœtida* grows on the mountains of *Oscobagi*, at the source of the *Ganges*.

Oscobagi is obviously derived from JESHU-BEG, the lord JESHU, another name for the famous RASA'LA or BRONGUS, who dwelt at *Bámíyan*, whose colossal statue is to be seen there to this day, and of whom I shall speak more fully hereafter. The true name of that place commonly called, *Ybaug* and *Jybuck* by Major RENNELL, between *Cabul* and *Bálkh*, is AI BE'G *Dominus Lunus*, *our Lord the Moon*. There are in its vicinity, in the mountains, several curious remains of antiquity. JEROME says also that the *Phison* was called *Ganges* in his time. They were both perfectly right, though it is almost certain, that they understood by it the great *Ganges*. HESYCHIUS says, that the *Phison* was thus called, because it flowed from a *fissure*, *gap*, or *mouth*. If so, this appellation is synonymous with *Cophes*, the ancient name of the *Landi-Sindh*, as will appear hereafter.

The second river was the *Gihon*, which compassed the land of *Cush*: this is the *Hir-Mend*; and the country is the original land of *Cusha* of the *Puránas*, which begins near *Candahar*, and includes part of *Iran* or *Persia*. In a former essay on *Egypt*, I had carried too far the eastern limits of that country.

The third river is the *Hiddekel*, which runs toward, or through the eastern parts of the land of *Assur*. This appears to be the river of *Báhlac*, which runs through the eastern parts, and seems to have been once the eastern boundary of the land of *Hassarah* or *Házárah*. This country extends from *Herát* to *Báhlac* and *Bámíyan*: from the unsettled disposition of its inhabitants, its boundaries cannot well be defined. They consider themselves as the *aborigines* of that country; and like the *Arabs*, were never thoroughly subdued. They are very numerous, brave, but incapable of discipline. They are *Musulmans*; but retain still many heathenish, and superstitious customs, at least in the opinion of their neighbours. The principal tribes are the *Daicándi*, *Taimáni*, &c. the first live between *Herát* and *Dawer*; and the

the others toward *Marv-Shájéhán*. This is probably the country of *Arſareth* of the apocryphal book of *Eſdras*. The fourth is the *Frát*, of which no particulars are recorded; it is the river of *Cunduz*. *Muſulmans*, as well as *Chriſtians*, have aſſigned various ſituations to the garden of *Eden**: and there is hardly a country on earth, or a region in heaven, but has been ranſacked in ſearch of it: whilſt ſome of the fathers have denied even its exiſtence. The *Hindus* are equally extravagant: they place it on the elevated plains of *Bukhara* the leſſer, where there is a river which goes round *Brahmápuri*, or the town of BRAHMA'; then through a lake called *Manſarovara* (the exiſtence of which is very doubtful), and is erroneouſly ſuppoſed by travelling fackeers to be the ſame with that, from which the *Ganges* iſſues, which is called in *Sanſcrit Bindu Sarovara*. From the *Manſarovara* lake, come four rivers running towards the four corners of the world, through four rocks cut in the ſhape of the heads of four animals; thus taking literally the correſponding paſſage of ſcripture. The *Cow*'s head is toward the ſouth, and from it iſſues the *Gangá*; toward the weſt, is a *Horſe*'s head, from which ſprings the *Chocſhu* or *Chocſhus*: it is the *Oxus*. The *Sitá-gangá*, or *Hoang-ho*, iſſues from an *Elephant*'s head; and laſtly the *Bhadra-gangá* or *Jeniſea* in *Siberia*, from a *Tyger*'s head, or a *Lion*'s head according to others.

The *Hindus* generally conſider this ſpot, as the abode of the Gods, but, by no means, as the place, in which the primogenitors of mankind were created; at leaſt I have not found any paſſage in the *Puránas*, that might countenance any ſuch idea; but rather on the contrary. As it is written in the *Puránas*, that on mount *Méru*, there is an eternal day for the ſpace of fourteen degrees round *Su-meru*; and of courſe an eternal night for the ſame ſpace on the oppoſite ſide; the *Hindus* have been

* The word *Eden* is perhaps derived from the *Sanſcrit Udyán*, which as well as *Váticá*, ſignifies a garden.

forced

forced to ſuppoſe that *Su-meru* is exactly at the *apex*, or *ſummit* of the ſhadow of the earth; and that from the earth to this ſummit, there is an immenſe conical hill, ſolid like the reſt of the globe, but inviſible, impalpable, and pervious to mankind: on the ſides of this mountain are various manſions, riſing in eminence and pre-excellence, as you aſcend, and deſtined for the place of reſidence of the bleſſed, according to their merits. GOD and the principal deities are ſuppoſed to be ſeated in the ſides of the north, on the ſummit of this mountain, which is called alſo *Sabha*, or of the congregation. This opinion is of the greateſt antiquity, as it is alluded to by ISAIAH, almoſt in the words of the *Pauranics*. This prophet deſcribing the fall of the chief of the *Daityas*, introduces him, ſaying, "that he would exalt his throne above the ſtars of GOD, and would ſit on the *mount of the congregation*, in the ſides of the *north*." The mountain, or hill of GOD, is often alluded to in ſcripture.

Some *Hindu* aſtronomers, aſhamed of this ridiculous ſuperſtructure, endeavour to reconcile the *Purúnas* to nature, by ſuppoſing that the ſun at ſome remote period, revolved in ſuch parallel of altitude to *Su-meru*, as to afford conſtant light for the ſpace of fourteen degrees round this point, and conſtant night for the ſame ſpace round *Cu-meru*. Thus by placing the north pole on the elevated plains of the leſſer *Buchára*, and forcing the ſun out of the ecliptick, they explain the alteration, which is ſuppoſed to have taken place on the weſt and eaſt points; whilſt the north and ſouth points, as they ſay, remain unmoveable. This alteration, they tell us, was not perceptible, at leaſt very little, in the countries to the ſouth of *Meru*, but in thoſe to the north of it, the ſun appeared to riſe in the weſt and to ſet in the eaſt. As long as the *Hindus* conſidered the earth as a *flat table* with the immenſe conical mountain of *Meru*, riſing in the middle, and intercepting the rays of the ſun, during part of its diurnal courſe; the points of eaſt and weſt muſt of courſe have been entirely inverted beyond

Meru.

Meru. In the firſt paſſage I met with, in the *Puránas*, relating to the *ſacred iſles* in the weſt, by which we are to underſtand the *Britiſh* iſlands, *Iceland* and *Fero*, it is poſitively declared, that they are ſituated to the eaſt of *Scanda-dwíp*, which is *Scandia*, or *Scandinavia;* accordingly I looked for them in the ſeas, to the eaſtward of that famous peninſula, particularly as PLINY ſeems to place there the iſland of *Elixoia*, ſuppoſed by ſome, to be the abode of the bleſſed: but my chief pandit warned me, with much earneſtneſs not to be too haſty: that this inſtance from the *Puránas* was deemed to be the only one, in which the *ſacred iſles* were aſſerted to be to the eaſtward of *Scandia;* and that he would produce numerous paſſages in which theſe iſlands were declared to be to the weſtward of *Scanda-dwíp*, or in a derivative form *Scandéya:* and that, from numberleſs particular circumſtances, he would prove to my utmoſt ſatisfaction, that *Scandéya* was really to the eaſtward of *Samudrantaraca*, a name by which the *ſacred iſles* are ſometimes called, becauſe they are in the middle of the ocean. As the *Bráhmens* would rather ſuppoſe the whole economy of the univerſe diſturbed, than queſtion a ſingle fact related in their ſacred books, he then informed me, that this ſingle paſſage alluded to a remote period, in which the pole of the globe, the courſe of the ſun, were different from what they are now, in conſequence of which there was a time, when the ſun appeared to the inhabitants of *Scandia*, to riſe above the *ſacred iſles*. But let us return to the terreſtrial paradiſe,

The followers of BUDDHA in *Tibet* place the garden of *Eden* at the foot of mount *Meru* toward the ſouth weſt, and at the ſource of the *Ganges*. The ſacred rivers, according to them, are the *Ganges*, the *Indus*, the *Sampu*, and the *Sitá-gangá;* by which they underſtand the *Sirr* or *Jaxartes*, which is alſo called *Sitá-gangá* in the *Puránas*. They have the ſame number of *heads* of animals, which are diſpoſed in the ſame manner: and the divines of *Tibet*, and of *India* conſider theſe four

animals

animals as the original guardians of the four quarters of the world. In the ſame manner commentators have conſidered the four ſacred animals mentioned in ſcripture, namely, the *Man*, the *Bull*, the *Lion*, and the *Eagle*, as the guardians and meſſengers of the four corners of the world.

The few *Hindus*, who live toward the *Indus*, inſiſt that the lake near *Bámíyan*, is the real and original *Manſarovara;* and near *Cabul* a little to the north weſt of *Sácárdará*, is a ſmall lake, which they call the leſſer *Manſarovara*, and which correſponds to a ſimilar lake to the ſouth of *Bindu-ſarovara*, called in the *Puránas*, the *eyes* of *Manſarovara*.

Bráhmens in general underſtand by *Meru* or *Su-meru* the north pole, in oppoſition to numerous paſſages in the *Puránas*. Their ſyſtem of geography has reference, in general, to the ſpot in which they ſuppoſe the terreſtrial paradiſe to be, or rather the abode of the Gods, called *Su-meru*, hence we read of countries to the W. N. W. of *Meru*, &c. The immenſe country of *Curu* is repeatedly declared in the *Puránas*, and by *Bráhmens*, in converſation, to be ſituated to the north of *Su-meru*. Even in their maps of the *ſeven dwípss*, *Su-meru* is placed a great way to the ſouth of *Siddhá-puri*, which they uniformly acknowledge to be exactly under the north pole.

Curu, which includes *Ruſſia* and *Siberia*, is divided into two parts, *Uttara-Curu*, or north *Curu*, and ſouth *Curu*. In the *Puránas*, particular notice is taken of the extraordinary length of the days in *Uttara-Curu:* and it is added, that in the iſland of *Puſcara*, which is aſſerted there to be ſituated at the furthermoſt extremities of the weſtern world, the length of the days is the ſame as in *Uttara-Curu*. This places *Puſcara* under the polar circle, at leaſt under the ſenſible one: this iſland will appear, in a future eſſay, to be *Iceland*. It is further added, in the *Puránas*, that the ſhores of that immenſe country,

country, which encompaſſes what we call the old continent; and the *Atlantick* ſea, &c. paſſes between the iſlands of *Puſcara*, and *Uttara-meru*, or the north pole: indeed the ſhores or *Greenland*, tending towards the north eaſt, may have given riſe to ſuch an idea. However, this ſhews plainly, *Uttara-meru*, or north *Meru*, to be different from *Su-meru*. *Meru* ſignifies an *axis*, and the two extremities of the terreſtrial *axis* are called *Uttara-Meru* and *Dacſhin-meru*, the northern and ſouthern *Meru*, or pole. The line paſſing through the centre of the earth and the ſuppoſed terreſtrial paradiſe, to which they generally refer in the *Puránas* with reſpect to bearings, is alſo *Meru*; and its two extremities, called *Su meru* and *Cu-meru*, are only the zenith and nadir points of that abode of the Gods.

The *Muſulmans* in the countries adjacent to *Bámíyan*, inſiſt that ADAM, (whom they call alſo KEYUMURSH) and EVE, having been driven out of paradiſe, wandered ſeparately for ſome time, till they met accidentally at a certain place, where ſaluting each other with mutual embrace, the place was accordingly called *Báhla*, or, in derivative form, *Báhlaca*, or the place of embrace. This is the general opinion of the natives: whilſt others, conſidering that the termination *ac*, or *ach*, ſignifies *brother*, will have it to imply the place where he embraced his brother; and of courſe ſuppoſe that KEYUMURSH had one. The firſt etymology is, I believe, countenanced by ABULFIDA.

When *Satan* was ejected, or *kicked*, as they ſay, out of the garden of *Eden*, where he firſt lived, he leaped over the mountains, and fell on that ſpot, where *Cabul* now ſtands: hence the origin of the well known proverb, that the inhabitants of *Cabul* are truly the offspring of this prince of darkneſs. Thoſe of *Cabul* do not deny his having been at *Cabul*; but ſay, he had no offſpring, was ſoon conjured away, and withdrew into the diſtrict of *Lamgan*.

It

It appears from ſcripture, that ADAM and EVE lived afterwards in the countries to the eaſtward of *Eden;* for at the eaſtern entrance of it, GOD placed the angel with the flaming ſword. This is alſo confirmed by the *Puránics*, who place the progenitors of mankind on the mountainous regions, between *Cabul* and the *Ganges*, on the banks of which, in the hills, they ſhew a place, where he reſorted occaſionally, for religious purpoſes. It is frequented by pilgrims, and is called *Swayambhuva-ſthán:* I have not been able yet to aſcertain its ſituation, being but lately acquainted with it: but I believe it is ſituated to the north weſt of *Sri-Nagar*.

At the entrance of the paſſes, leading to the place, where I ſuppoſe was the garden of *Eden*, and to the eaſtward of it, the *Hindus* have placed a deſtroying angel, who generally appears, and is repreſented like a *Cherub;* I mean GARUD'A, or the *Eagle*, upon whom VISHNU and JUPITER are repreſented riding. GARUD'A is repreſented generally like an eagle; but in his compound character, ſomewhat like the *Cherub*, he is repreſented like a young man, with the countenance, wings, and talons of the eagle. In ſcripture, the deity is repreſented riding upon a *Cherub*, and flying upon the wings of the wind. This is the *Simurgh* of *Perſian* romances, who carries the heroes from one extremity of the world to the other. GARUD'A is called the *Vahán** (literally the vehicle) of VISHNU or JUPITER, and he thus anſwers to the *Cherub* of ſcripture; for many commentators derive this word from the obſolete root *C'harab* in the *Chaldæan* language, a word implicitly ſynonymous with the *Sanſcrit Vahán*.

An accurate tranſlation of the legends relating to GARUD'A, PROMETHEUS, and the building of *Bámíyan*,

* Hence the *Latin* words *Veho*, &c. In the ſouthern dialects of *India*, they generally pronounce the letter *h* hard like *g;* thus for *vahán*, they ſay *vagán*, a waggon: for *mahá*, great, they ſay *megá*, hence the *Greek* word *mega*.

ſhall

ſhall be given ſeparately at the end of this diſſertation. The city of *Bámíyan* being repreſented as the fountain of purity and holineſs, it was called with propriety *Pará-Bámíyan* or *Bámíyan*, the pure and holy; for the ſame reaſon the diſtrict of *Bámíyan* might be called *Pará-déſa*, or *Párá-déſa*, the pure and holy country. This diſtrict is now barren, and without a ſingle tree. The ſacred books of the *Hindus*, and of the *Bauddhiſts*, do, however, declare moſt poſitively, that it was otherwiſe formerly. Tradition informs us alſo, that the number of inhabitants was at one period ſo prodigious, that the trees, underwood, graſs and plants were deſtroyed. The vegetable ſoil being no longer protected, was in the courſe of ages waſhed away by the rains: certain it is, that the ſoil in the valleys is moſt fertile, and the whole diſtrict, ſuch as it is now, is ſtill a moſt enchanting and delightful ſpot. The country to the eaſtward of *Bámíyan*, as far as the *Indus*, is the native country of the vine, and of almoſt all the fruit trees we have in *Europe*: there they grow ſpontaneouſly, and to a great degree of perfection. When the natives find a vine, an apple tree, &c. in the foreſts, they clear all the wood about it, dig the ground, and by theſe means, the fruit comes to perfect maturity. When we are told in ſcripture of NOAH cultivating the vine, we may be ſure, that it was in its native country, or at leaſt very near it.

Bámíyan, though not mentioned by name in NONNUS's *Dionyſiaes**, is well deſcribed by him as the abode of the benevolent BRONGUS, who lived in *Samach'hes*, or receſſes artfully excavated in the mountains. BRONGUS is obviouſly the BHRĀNGA, or BHRĀNGAS of the *Purānas*, called alſo SARASA'LA, and of whom I ſhall ſpeak more fully hereafter. BRONGUS had two ſons, who were highly reſpected by DORIADEN, perhaps the DIRYODAN of the *Purānas*. BHRĀNGA, or SARASA'LA, had alſo ſeveral children, who aſcended the throne of

* B. 17, v. 40, &c.

Calingá,

Calingá, after their father had forsaken the world, and withdrawn to *Bámíyan*, to give herself up to contemplation.

Bámíyan appears also to be the town called *Drastoca* by PTOLEMY; which is derived from the *Sanscrit Drashatca*, and implies the *stone city:* towns before being only an assemblage of huts. Its distance and bearing from *Cabura*, or *Orthospána*, the present city of *Cabul*, puts it beyond doubt. One of the *Sanscrit* names of *Cabul*, is *Asa-vana*, and sometimes, by contradistinction, *Urd'h'-As-vana*, or, as it is always pronounced in the spoken dialects, *Urdh'-A'shán* or *A'shána*. The upper *Naulibis*, or *Nilábi*, in PTOLEMY, falls in at *Ghor-bund*, or *Goracsha-van*, in *Sanscrit*, which appears to be the *Alexandria ad Paropamisum* of the historians of ALEXANDER. It was called *Nilábi*, from its being situated on the banks of the *Nìláb*. The immense ridge between *Nilábi* and *Drashatca*, or *Drashtaca*, is properly delineated in PTOLEMY. *Alexandria ad Paropamisum* was near the cave of PROMETHEUS, which is to be seen to this day near the pass of *Sheibar*, between *Ghor-band* and *Bámíyan*. *Orthospána*, or simply *Ashána*, is mentioned in the *Pentingerian* table. It is called also in *Sanscrit*, JAYINI'-DE'VI'-*sthán*, or the place of the goddess of victory, and is the NICÆA (a word of the same import) of the historians of ALEXANDER. The place where her temple stood, is close to *Cabul*, and is still secretly visited by *Hindu* pilgrims. JAYINI'-DE'VI' and ASA-DE'VI' are the same deity: the latter signifies the goddess, who grants the object of our *asa*, or *wishes*. She is called also ASYA'CA in a derivative form, and the place is called by the *Musulmans*, *Ashcán-árfán*, who have thus altered the old name into an *Arabick* denomination of the same import nearly; for it signifies, he who knows our *ashee*, or wishes. There is the tomb of a saint, who now officiates in the room of ASA-DE'VI', and grants to devout *Musulmans* the object of their wishes.

The

The NICÆA of the hiſtorians of ALEXANDER, is probably the NICÆA of NONNUS*, which he calls alſo *Aſtacia* probably for *Aſácia* or *Aſyácia:* for, according to the *Puránas*, JAYINI'-DE'VI', or the nymph NICÆA, was alſo called *A'ſyáca; A'ſáca* would be as grammatical; and the town of *A'ſáca* or *A'ſyáca*, in a derivative form, would be *A'ſyáceyá* or *A'ſáceyá*, or, according to the idiom of the *Greek* language, *Aſyacia* and *Aſacia*.

The *Parapomiſean* hills, or at leaſt part of them, are called alſo *Parnaſus*, and *Parneſſus*, by DIONYSIUS PERIEGETES, PRISCIAN, and F. AVIENUS: this laſt appellation has been ſuppoſed to be only a curruption, or contraction from the firſt. But the difference is ſo great, that, in my humble opinion, theſe are really two different denominations of the ſame mountainous tract, at leaſt, of part of it. Theſe mountains are in general called *Dévanica* in the *Hindu* ſacred books, becauſe they were full of *Dévás* or gods, and holy *Riſhis* and *Bráhmens*, who are emphatically called the gods of the earth, or *Bhu-dévas*. They lived, according to the *Puránas*, in bowers or huts, called *Parnaſálas* or *Parnáſas*, becauſe they were made of leaves, for ſuch is the *Sanſcrit* expreſſion, whilſt we ſhould ſay, built with twigs and branches. Indeed the leaves are the moſt conſpicuous part, becauſe in *India*, when dry, they generally adhere ſtill to the boughs they grew upon. The moſt celebrated amongſt theſe *Parnáſas* was that of the famous ATRI, whoſe hiſtory is cloſely connected with that of the *Britiſh* iſlands, and other weſtern regions. It was ſituated on an inſulated hill, called in the *Puránas*, *Meru*, and by the *Greeks*, *Meros*. It is ſuppoſed by the *Hindus* to be a ſplinter from the larger *Meru;* and that the Gods come and reſide upon it occaſionally. Its ſituation was aſcertained by the late Mr. FOSTER, by my friend MIRZA-MOGUL BEG, and by P. MONTSERRAT, who accompanied the emperor ACBAR in his expedition to *Cabul* in the year 1581. It

* B. 16 in fine.

IS

is called to this day *Mer-coh* and *Mar-coh*, or the mountain of *Mer* or *Meru;* for in the ſpoken dialects, they often ſay *Mer* for *Meru*, and in the *Treloci-derpana*, we conſtantly read *Mer* for *Meru*. It is on the road between *Peiſhower* and *Jalálábád;* and about twenty-four miles from the latter, on the banks of the *Landi-Sindh* or *Cameh* river. It is now a bare rock, the river which formerly ran to the ſouth of it, having carried away all the earth from the lower parts; and the earth above being no longer ſupported, was alſo waſhed away by the rains. From its diſmal appearance, it was called *Bé-dowlat* by the emperor HUMA'YUN. It looks like a ſingle ſtone, without any fiſſure. It extends from the weſt to the eaſt. It riſes abruptly from the plain in which it ſtands; from the bottom to the top; P. MONSERRAT reckons about 2000 feet, and it is about ſix furlongs in length: its diſtance from the neareſt hill is about three miles. The ground to the ſouth and eaſt is marſhy, being the old bed of the river: to the weſt are ſeen ſeveral triangular entrances into caves. To the eaſt at the diſtance of three miles, is a wretched village, called *Biſſour* or *Biſſowly* (*Buſſowul* in Major RENNELL's map) which about two hundred years ago was a pretty large town. To the weſt are the villages of *Ambárcáná* and *Baitercóte*, cloſe to which NA'DIR-SHA'H encamped; and as there is no other encamping ground near this place for a numerous army, we may ſafely conclude this to be the very ſpot on which ALEXANDER encamped near the town of *Nyſa*, which extended all round the mountain. Beſides, his camp was near the ſepulchres of the inhabitants, which were to the weſt of the mountain.

On this mountain, it is declared in the *Puránas*, was the *Parnaſálá*, or *Parnáſa*, of ATRI: there they ſhewed formerly a cave, in which he uſed to retire occaſionally.

The word *Parhá* signifies the leaf of a tree, a feather, and a wing. Its derivative *Parháśa*, signifies any thing made of leaves; such as baskets, hats, penns, coops, huts, &c. it signifies also any thing that is radiant; hence the learned affirm, that the word *Parha* was formerly synonymous with *Ciraṇa*, or ray, though now never found in that sense. In the north-west parts of *India*, in the *Pastoo* language, it is pronounced *Panna* and *Pannai* in the plural: hence I conceive the word *Parna* or *Panna*, to be the root of the *Greek* and *Latin* words *Pinna*; and of the *Saxon* and *English* words pen, fin, pin, penn, and also of the name of that plant, with pinnated leaves, called fern in *English*, and in *Greek* *Pteris*, the pinnated or winged: *Parnica* is another regular derivative, some times used in composition, as well as *Parhaca*; and, as in the first ages, mankind either lived in *Gopas*, caves, or in huts built of branches and leaves, which last were their summer habitations, these huts were *Parháśas*, or *Parhicas*, and *Parnacas*, *Fornaces* and *Fornices*. The *Greek* words Ποφνειον, Ποφνεια, and Ποφνη, seem to be derived from *Parhéyam*, a regular *Sanscrit* derivative, though never used. Prostitutes were thus called in *Greek* for the same reason that fornication is derived from fornix.

Mount *Parnassus* in *Greece* was probably thus denominated, from a *Parháśa*, which constituted the ancient temple, according to PAUSANIAS: it was made of branches and leaves; but as the word *Parháśa* signifies also any thing made of feathers or wings, others insisted, that formerly it consisted of the wings of certain bees cemented together with wax.

In the most secret recess of the temple of VESTA at *Rome*, there was a *Parháśa* or *Parháśa* fenced with leaves and branches, and it was called *Penus* according to FESTUS: as it was uncovered, it was really, what we call in *English*, a penn or fence: and, indeed, the word *Parhaśa*, properly pronounced, sounds very much like *Penus*.

In the ſame manner, the word *Pátrá* a leaf, or *Páttá*, as it is pronounced in the ſpoken dialects, has found its way into *Latin*, in the words *Patera*, *Patina*, *Patena*, and *Petaſus*: this laſt being uſed to ſignify equally the covering of the head and of a houſe, which were originally made of leaves and branches, and to this day, in *India*, by the poorer ſort of people. The *Pateras* called *Pátrá* in *Sanſcrit*, or cups uſed in ſacrifices, are often made of a large leaf, folded up, and kept together with four wooden pins; utenſils made of leaves are ſtill uſed by the *Hindus* at their meals, and the *Greek* word *Petalon* is obviouſly derived from it.

The word *Parńáſa*, or *Parńáſas*, was not unknown in the weſt, at ſome early period: but as it belonged to the language of the gods, there was another word prevalent in the vulgar or profane languages, and uſed in its room. This word is *Larna* or *Lar*, which is found to this day in the *Galic* language, and that of the *Cymri*, as well as in *Greek*; in which laſt however it appears to be obſolete: but either in its original form, or through its derivatives, it is ſuſceptible of the various acceptations of the word *Parńáſa*; and this accounts for *Larnaſſus* being alſo the name of mount *Parnaſſus*.

Larcos, *Larnax* ſignified a baſket of twigs, and a cheſt: *Larięthos* any covering of bark. In *Greek Laura*, *Lauran*, ſignify, a houſe, an hermitage; alſo an aſſemblage of ſuch houſes. *Lar*, in *Latin*, is a houſe in *Galic*; and in the dialect of the *Cymri*, the ground floor. The original name ſeems to have been *Larna*, which was pronounced in different countries, *Lar* and *Lan*, like the *Sanſcrit* word *Parna*, of which, by dropping either the *r* or the *n*, they make either *Para*, or *Pana*, in various dialects of *India*. Hence *Llan* in *Galic* ſignifies a houſe: *Llan* in the dialects of the *Cymri*, an incloſure. Thus, were the houſehold gods called indifferently LARES and PENATES.

The words *Lar*, *Larna*, *Parná* and *Pátá* were once used indifferently in the west, to signify a penn or coop: and swine confined in them for the purpose of fattening, were called from that circumstance *Larioni*, and their flesh, *Laridum*, *Perna* and *Petasio*.

The word *Lar* or *Láura*, is still used in *Galic* (*Loar* or *Lombar*), and in the dialect of the *Cymri*, *Llueru* to signify resplendence, and probably from the last are derived the words glare, clear, &c. It is applied in *Greek* to resplendent metals, as gold and silver; also to the *Laurus*, or laurel tree, sacred to the author of resplendence. *Daphne*, another name for the *Laurus*, is derived from the *Sanscrit Tapana*, a name of the Sun, as the author of heat: for that place in *Egypt* *, called *Tapana* in the *Puránas*, is called *Taphnai*; by the seventy interpreters; and *Daphanæ* or *Daphne*, by *Greek* and *Roman* authors.

Though these mountains were in general called *Parnassian*, yet the appellation of *Parnassus* or *Parńása*, belonged properly to that single mountain, on which stood the *Parńasála*, or *Parńása*, of Atri or Idris; this was, I suppose, his summer habitation, for he had below a *Samach'h*, in which, it is said, he lived occasionally.

It is declared in the *Puránas*, that when De'va-Nahusha, always pronounced Deo-naush in conversation, and in the vulgar dialects and obviously the Dionysius of the *Greeks*, conquered the world, he visited the seat of his grand ancestor Atri on the lesser *Meru*; and being uneasy to see it thus neglected; he sent for Visva-carma, the chief engineer of the gods, and ordered him to build on the spot a superb city, which he called after his own name *Déva-Nahusha-nagari*, which is accurately rendered *Dionysiopolis* in *Greek*.

* *Asiatick* Researches, vol. III. p. 383.

It

It is called alſo ſimply *Nahuſham*, *Nahuſhá* and *Nauſhá*, from which the *Greeks* made *Nyſa*: and, as the word *Nahuſhá* is pronounced *Naguſh* in ſeveral dialects of *India*, particularly in the *Deckan*; we find it alſo called *Nagaz*, as in the life of *Amir* TIMUR: but it is not to be confounded with *Nughz* in the *Ayeen Akbery*; the true name of which, is *Bughz* or *Bughzán*, the capital city of the diſtrict of *Iryáb* near *Cabul*. *Nahuſhá* is better known in *Hinduſtan* by the emphatical appellation of *Dévá-Nagari*, or the divine city. It was called alſo, but within the limits of that country only, *Nagára* or the city.

Since the deſtruction of the original city, the capital of that diſtrict, whatever it was, went alſo by the name of *Nagara*, which was ſucceſſively applied to *Adinagara* and to *Jellálábád*.

The diſtrict of *Nagara* is called, in the *Ayeen-Akbery* and by the natives to this day, *Nekier-hur*, for *Nagar-wára*, or the *home* diſtrict of *Nagara*.

Not a ſingle veſtige remains now of the ancient *Nauſhá* or *Nyſa*; but the ſtony baſe of *Meru*, has reſiſted the ravages of time, and the corroſions of the river, which flowed formerly to the ſouth of it.

The Sun and DIONYSIUS were worſhipped there, and DEVI, or the Earth, had a cave ſacred to her.

There is a ſtriking ſimilarity between the *Grecian Parnaſus* and this mountain. The original temple at both places was an humble *Parńáſa*: at both places the Sun, DIONYSIUS, and the Earth were worſhipped. Mount *Parnaſus* in *Greece* was full of *Samach'hes* alſo. It had two ſummits, one of which was called *Nyſa*, as well as the adjacent city; and the other *Cyrrha* or

Cyrrhan in the oblique caſe: this was ſacred to the Sun. The words *Cyrrha* and *Kirros* ſeem to be derived from the *Sanſcrit Ciraña*, which implies irradiation and reſplendence. The moſt ancient oracle, and place of worſhip at *Delphos*, was that of the earth, in a cave, which was called *Delphi;* an obſolete *Greek* word, ſynonymous with *yoni* in *Sanſcrit:* for it is the opinion of devout *Hindus*, that caves are the ſymbol of the ſacred *yoni:* this opinion prevailed alſo in the weſt; for perforations and clefts in ſtones and rocks were called *Cunni-Diaboli* by the firſt *Chriſtians*, who always beſtowed the appellation of devils on the deities of the heathens. Perforated ſtones are not uncommon in *India;* and devout people paſs through them, when the opening will admit of it, in order to be regenerated. If the hole be too ſmall, they put either the hand or foot through it, and with a ſufficient degree of faith, it anſwers nearly the ſame purpoſe. One of the ſeven wonders of the peak in *Derbyſhire*, is called by a coarſer name ſtill, but very improperly; for this wonderful cave, or at leaſt one very much like it, in the *Sacred-iſles*, and particularly noticed in the *Puráńas*, is declared to be the ſacred *yoni*. The cleft called *Guhya-ſthán* in *Nepál*, anſwers fully and literally to the coarſe appellation beſtowed upon the other in *Derbyſhire* by the vulgar, and is moſt devoutly worſhipped by numerous pilgrims from all parts of *India*.

According to the opinion of my learned friends here, it is probable, that whenever *puja* was performed in honour of PRĬTHIVI, or the *Earth*, the navel of VISHNU, or ſacred *umbilicus* of white marbles kept at *Delphos*, in the ſanctuary of the temple, and carefully wrapt up in cloth, was placed in the cave of *Delphi*. By the navel of VISHNU the *Hindus* underſtand the *Os Tincæ**.

From the ſimilarity between the *Parńáſa* of *India*,

* *Aſiatick* Reſearches, vol. III. p. 363.

and

and that of *Greece*, it is natural to ſuppoſe, that the rites and ceremonies, were carried from the more ancient, to the modern one: the *Indian Parnáſa* is evidently the more ancient: for when DEUCALION went into *Greece*, DIONYSIUS and APOLLO were not worſhipped on mount *Parnaſus*: he found there only the oracle of THEMIS. As DEUCALION was ſovereign of the country, in which the *Indian Parnaſus* is ſituated, it is, in my humble opinion, highly probable, that he carried into *Greece*, the worſhip of the deities of his native country, and more particularly that of DIONYSIUS; though I muſt confeſs, that it is poſitively aſſerted in the *Puránas*, that DE'VA-NAHUSHA viſited the countries in the weſt; and there built cities called after his own name: he gave alſo his name to rivers, and particularly to the *Danube* or *Iſter*, which, according to the *Puránas*, ſhould be ſpelled *Yſter*. His route is thus deſcribed in the *Puránas*: he firſt deſcended from the elevated plains of little *Bokhara* with a numerous army, and invaded the countries of *Samarcand*, *Báhlac*, and *Cábul*, which were then inhabited by the '*Sacas* and '*Sacaſenas*: he conquered afterwards *Iran*, *Egypt*, and *Ethiopia*; and proceeding afterwards through the *dwíp* of *Varáha*; or *Europe*; he conquered *Chandra-dwíp*, or the *Britiſh* iſlands: he went thence into *Curu*, which includes the northern parts of *Europe*, and the whole of *Siberia*: having conquered *China*, the countries to the ſouth of it, and *India*, he returned to the plains of *Meru*, through the paſs of *Hardwar*.

The *Greeks* ſuppoſed that mount *Parnaſſus* was the favourite abode of the *Muſes*. The *Hindus* have not limited their reſidence to any particular ſpot: but as the SUN is their leader, they are ſuppoſed to accompany him.

They are called *Raſa* in *Sanſcrit*, in which language this word ſignifies juice in general, but is more particularly underſtood of the honied juice of flowers: it implies alſo any thing which we particularly delight in.

There

There are nine of them, divided into three classes: and this accounts for the *Greeks* supposing that there were, originally, but three muses.

These three classes relate to love, war and religion.

First Class:

1. *Shrĭngárá* adorned with jewels: called also *Shuchí* neat; and *Ujwalá* shining white.
2. *Hásyá*, *Hásá*, *Hasá;* all implying laughter.
3. *Caraṅá*, *Caruṅyá*, *Graná*, *Crapá*, *Anucampá*, *Anucroshá*, all implying a merciful disposition, and tender pity.

Second Class:

4. *Raudrá* and *Ugrá*, grief and rage accompanied with tears: despair.
5. *Virá* or *Utswahá-vardaná:* heroick: inspiring with courage.
6. *Bhayánacá*, *Bhayancará*, *Pratibhayá*, *Bhairava*, *Bhíshaná*, *Dáruhá*, *Bhishmá*, or *Bhimá*, *Ghorá;* all these names imply, fear, horror, hardness of heart, reciprocal dread, &c.

Third Class:

7. *Vibhatsá* or *Vicratá;* trembling with fear at the sight of scenes of cruelty, or at the recital of heavy misfortunes.
8. *Adbhutá* or *Vismayá*, *Chitrá Ascharyá:* wonder and admiration.
9. *Shantá* is when we have effectually extinguished our senses.

Vibbatsá, and *Adbhutá* relate to that state, in which are virtuous people; who, without renouncing the world, enjoy its lawful pleasures; cautiously avoiding vice and guiltiness. *Shantá* is adapted to the state of a person, who, wishing to be reunited to the Supreme Being, considers virtue in the light

light of vice, because it implies attachment to the world. This is seldom used, hence it is, that many reckon only eight *Rasas* or Muses. Worldly, or common singers are forbidden the use of this, and even according to some, that of the seventh and eighth.

THE ancients, according to MACROBIUS, entertained nearly the same idea, with respect to the Muses. Divines, says he * reckon nine Muses, eight of which answer to the musical sounds of the eight sphæres: the ninth, which is the most perfect and sublime, they consider as an harmonical concord resulting from the eight former. MACROBIUS insists that this idea is as ancient as HESIOD. The *Hindus* likewise consider *Shántá* as resulting from the simultaneous cadence and united powers of the others: and as *Shántá* is never used in worldly concerns, they often reckon eight *Rasas* or Muses only. The nine *Rasas* are represented as beautiful damsels, with peculiar attributes and dresses.

PIERUS the son of MAGNES, whose great-grandfather was DEUCALION, introduced into *Greece* the nine Muses: and the old uncouth music of the *Greeks*, which consisted only of four Muses, was laid aside, it seems; but not without violent struggles on the part of the adherents of the old RHYTHMICA.

DEUCALION is called CA'LA-YAVANA in the *Puranás*, but CA'LYU'N and CA'LJU'N in conversation, and in the vulgar dialects. Though acknowledged of divine extraction, and of course entitled to the epithet of DE'VA; it is never bestowed on him, because he presumed to oppose CRI'SHNA: and, indeed, he was very near overpowering him. But, as

* MACROB. in somn. scip. lib. 2°, c. 3°, p. 88.

his descendants gave him his right as to the title of DE'VA, and decreed divine honours to be paid to him, we shall henceforth call him DEVA-CA'LA-YAVANA, or, according to the vulgar mode of pronouncing this compound word, DE'O-CA'L'-YUN, which sounds exactly like DEUCALION in *Greek*.

HIS father was the famous GARGA, whose story is thus related in the *Bhavishya-puraná*. SADA'-SIVA-MAHA'-DE'VA, is a great penitent (*Yogi*): he continually walks in the path of knowledge: having dedicated himself to the service of VISNU (here is understood the supreme being in the character of VISHNU), he was constantly thinking on him. They, who devoted themselves to the worship of VISHNU, have no occasion to worship the other gods: for there is no god like VISHNU, who is the original soul, and the ancient of days. Whoever devotes himself to him, obtains a seat at the most excellent feet*, he has no beginning, and he never dies: he is pure and incapable of decay: he bestows knowledge, and everlasting bliss: hence he is particularly to be worshipped. MAHA'-DE'VA well knowing that VAICANT'HA (Vishnu) was to be born of the *Vrishnis* and *Andhacas*, said, I shall be his *Purohita* (or officiating prieſt): and he was born of woman, in the character of GARGA: as soon as CRĬSHNA was born, GARGA acted as his *Purohita*; hence he is called GARGA'CHA'RYA: he gives *Urdha* (command over lust), and, though concealed under a mortal form, he is really MAHA'-DE'VA. GARGA is positively asserted here to be MAHA'-DE'VA himself, who is called also PRAMAT'HE'SA or the lord of the five senses or servants: because they are to be kept in due subjection to reason. Hence

* This expression is still used at the court of the great LAMA, who is an incarnation of VISHNU.

the

the western mythologists gave out some, that D'EO-CALY'UN was the son of JUPITER, others of PROMETHEUS. GARGA was a famous astronomer, being MAHA'-DE'VA himself; and the same is asserted of PROMETHEUS, who generally lived in *Scythia*, in which is situated the peak of *Caliasa* the abode of MAHA'-DE'VA. Lastly, PROMETHEUS is said to be the son of JAPET, the JYA-PATI of the *Hindus*; and it is very probable, as we have seen in a former essay, that JYA-PATI was an incarnation of MAHA'-DE'VA, or MAHA'-DEV'A himself. The *Greek* mythologists were little acquainted with the numberless incarnations found in the *Puránas*, but suppose the *Avátaras* and *Avantaras* to be the offspring of the parent deity, according to the usual course of nature.

THE history of DEO-CA'L-YU'N is thus related in a well-known poem called *Hari Vansa*. GARGA was the spiritual guide of the *Vrishnis* and *Andhacas*: at an early period he became *Brahmachári*, and had such command over himself, that he never longed after woman. One day, before a numerous and respectable assembly, king SHALA reviled him, and asserted that his continence proceeded merely from incapacity. The sage irritated at this reflection, withdrew from the world, and performed religious austerities for twelve years, during which time he subsisted entirely on filings of iron. MAHA'-DE'VA being pleased granted his boon, that a son should be born unto him, who would reunite in himself all the energy of the *Vrishnis* and *Andhacas*; and that they should never prevail against him. The sovereign king of the *Yavanas*, having no children, and hearing of this boon, went to GARGA; and after many entreaties prevailed on the sage to accompany him into his kingdom: there he brought him into a *Gósha*, or hut made of leaves and branches, and

placed round him many shepherdesses; the holy man fixed his choice on one of them called *Gopáli-apsarasa:* she retained his seed against her will, and in due time was delivered of a boy at *Gazni.* Here I shall observe, that this *apsarasa*, or celestial nymph, having misbehaved at the court of INDRA, was doomed to live on earth, for a certain time, in the character of a *Gopáli* or shepherdess. This punishment is often inflicted on them: and whilst on earth they generally prostitute themselves to the handsomest men; but always destroy the embryo as soon as possible. In this however the *Gopáli-apsarasa* did not succeed, because GARGA was of a superior nature, being an incarnation of MAHA'DE'VA. The king of the *Yavanas* brought up the child in his own place, and adopted him for his son: after his death CA'LA-YAVANAD succeeded to the throne. He longed after the ſtrife of war, and having asked the most respectable *Bráhmens*; which were the most powerful tribes in the country; NA'RADA pointed out to him the *Vrĭshnis* and *Andhacas*, CAL-YUN being joined by the *Sácas, Daradas, Paradás, Tangáns, Chaſas*, and all the petty tribes of robbers, inhabiting the skirts of the snowy mountains, advanced against *Mat'hurá*. CRĬSHNA having heard of MAHA'-DEVA's boon, was greatly alarmed; and attempted to enter into a negociation with CAL-YUN, but his overtures were rejected. He then convened his friends and relations; and having declared to them in a few words, the critical situation they were in; represented to them that they had to time to lose, advised them to leave *Mat'hurá*, and retire with him to *Dwaraca* in *Gurjur-désa* (near point *Jigat*). He informed them also that JARA'-SANDHA (the most powerful prince in *India* at that time, and whose daughter had married (CANSA) at the head of the confederate kings, who had resolved to revenge the death of CANSA, was advancing with an immense

mense army. When CRISHNA had seen his friends and relations safe at *Dwaraca*; he returned alone to *Math'hurá*; and presented himself before CA'L-YUN, who rising from his seat in a great rage, attempted to seize him. CRISHNA fled, and CA'L-YUN pursued him as far as the cave in which slept the famous MUCHU-CUNDA. It is situated in the *Raivata* mountains, which extend from *Guzrát* toward *Ajmér*. MUCHU-CUNDA was the son of king MANDATA, who lived in the *Crĭta-yuga* or golden-age: having defeated and humbled the *Daityas*, the gods, out of gratitude, waited on him requesting him to ask a boon. The warrior, who was exhausted with fatigue, answered he wanted nothing but sleep, and wished he might sleep till the arrival of CRĬSHNA, and that, whosoever should presume to awake him, might be destroyed by the fire of his eye. CRĬSHNA, who knew that such a boon had been granted to MUCHU-CUNDA, boldly entered the gloomy cave, and placing himself toward the head of MUCHU-CUNDA, waited in silence the arrival of CA'L-YUN. He soon arrived, and seeing a man asleep, struck him several times to awake him. MUCHU-CUNDA opening his eyes, a flame darted from them, which reduced CA'LA-YAVANA to ashes. CRĬSHNA went immediately to *Dwaraca*, and gathering his forces fell upon the *Yavans*, put the greatest part of them to the sword, and the rest fled to their native country.

THE conclusion of the drama is certainly forced, ridiculous, and unnatural: it is more probable, that DEO-CAL-YUN seeing his army defeated, fled to his native country: and that, through shame and vexation, he withdrew with his family and adherents to *Greece*. This conjecture is supported by the testimony of *Greek* historians, who uniformly assert, that he reigned, and ultimately died in *Greece*. They

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are not, however, agreed about his origin, some saying he was a *Scythian*, and others, that he was a *Syrian*.

ANY catastrophe, general or partial, either by fire, sword, or water, is called in *Sancrit Pralaya:* but this word in the spoken dialects is generally understood of destruction by water, and of course the *Greeks* understood it in that light; when speaking of the dreadful catastrophe, which befel the *Yavanas* and their leader DEO-CAL-YUN on the borders of *India*; and I cannot help observing, that *Greece* was a most unfavourable spot for a partial flood.

THE *Yavanas* originally worshipped the sacred YONI alone, which they considered as the sole author of their being; but learned pandits suppose, that, when we read in the above legend, that the king of the *Yavanas* adopted for his son an *Avántara* of MAHA-DEV'A; it implies also, that himself with his subjects admitted the worship of the *Linga* or *Phallus*. Be this as it may, PROMETHEUS, DEUCALION, and his mother JODAIMIA, had altars erected to them in *Greece*.

Garga-sthán or the place of GARGA, where he lived amongst cowherds, is fourteen coss from *Cabul* according to some pilgrims. I have not been able yet to ascertain its situation, with sufficient accuracy to insert it in the map. It is situated in the mountains, which, from this circumstance, are called *Garga-sthan*, and by *Persian* authors *Ghergh'istan*.

It was asserted in the *Cabirian* mysteries, that PROMETHEUS or PRAMATHESA had a son called ÆTNŒUS.* PAUSANIAS mentions his name only;

* PAUSAN. *Bœotic. lib.* 9. p. 300.

and

and says he could not divulge, what he had heard concerning these deities in the sacred recesses of the temple, without being guilty of a sacrilege. The name of this inferior deity is derived from the *Sanscrit* AITNE'SWARA or AITNE'SA for AITNA-ISA. This god I do not find mentioned in the *Purános*; but his consort AITNI'-DE'VI, or the goddess AITNI', is repeatedly noticed in these sacred books. She resided in an island, the dimensions of which are declared to be thirty *yojanas*, or about 150 miles, an expression rather obscure. There on a high mountain vomiting fire, was the *sthán*, or place of the goddess AITNI': indeed the whole island is called *Aitní-sthán*, and has no other name in the *Purános*. This obviously is Mount *Ætna*, and the island of *Sicily*, which was uninhabited, according to the *Pauranics*, on account of the dreadful eruptions of the mountain; the crater of which was considered as sacred according to PAUSANIAS.* The island (or tract of islands) of LIPARA is mentioned also in the *Purános* in which it is declared, that the appellation of LAYA-PARA is derived from PARA-LAYA; because they who threw themselves into the volcano, obtained *Laya*, or reunion to the supreme being. It is said to be ten *yojanas* or fifty miles distant from *Aitní-sthán* or *Sicily*.

AITNI'-DE'VI is obviously the nymph called ÆTNA by the *Sicilians*: she was the mother of the PALICI, whose father was JUPITER with the title of ADRAMUS, supposed with good reason by the learned to be the same with ther *Babylonian* ADRAM-MELECH, whom I mentioned in a former essay on *Semiramis*, ADRAMUS is obviously derived from the *Sanscrit* ADHARME'S'WARA or ADHARME'SA: IS'A, IS'WARA in *Sanscrit*; MELECH in *Chaldean*, are synonimous; and the lord ADHARMA is an epithet of SIVA.

* PAUSAN Lacon. p. 107.

Having discovered some years ago, that Prometheus, as a title of Siva, was not unknown to learned pandits, I immediately enquired after his cave or den, and related to my learned friends the legend of Prometheus and the eagle. They shrunk back with horror at this horrid blasphemy, and declared that none but impious *Yavanas* could ever suppose, that the deity could be fastened to a rock, and have its entrails devoured by an eagle. I was forced to drop my enquiries on a subject so disagreeable: but on considering lately, that the den was improperly called the cave of Prometheus; and that it should be rather called the place of the eagle; I enquired after *Garúda-st'hán*, and was perfectly understood. They soon pointed it out to me in the *Puránas* and other sacred books, such as the *Hari-vansa*, the *Cásmir-mahatmya*, &c. and I immediately perceived that it was situated in the vicinity of *Cabul*, where the historians of Alexander have placed it, and declare, that this hero had the curiosity to go and see it. I have discovered since a passage in a section of the *Scanda-purána*, called the *Himáchel-c'handa;* in which it is declared that the *st'hán* or place of Garud'a, is near *Vámiyan*. It is related in the *Hari-vansa*, that, when Chrishna had occasion for Garud'a's assistance, to clear up the country round *Dwaraca*, which abounded with savages, ferocious animals, and noxious reptiles, Garud'a had then his place or *st'hán* on the summit of a high peak of difficult access, in the country of the *Yavanas*, to the westward of the *Indus*; where he used to carry men and animals he could lay hold of, in order to devour them at his leisure. Unfortunately no further particulars could be collected from the *Hindu* sacred books, when a learned pandit recollecting, that as from an early period that country had been in the possession of the followers of Bud'dha, some light on this subject might naturally be expected

expected from their books; after many entreaties, I prevailed on him to consult the learned of that sect: this he promised to do on condition that I would not make a practice of it. He found the *Bauddhists* equally averse to such communication. To be short, he produced at last a singular book called the *Budha-dhármacharya Sindhuh*; in which we found the legends relating to PROMETHEUS and the eagle, with many other interesting particulars. I beg leave here to retract what I said in a former essay on *Egypt* concerning the followers of BUDD'HA*. There are many learned men among them, and they have many valuable books: it appears also that they have *Védas* and *Purânas* of their own. A comparison of them with those of the *Brahmenical* tribes would prove very interesting, and of the greatest importance. It would prove at first a very arduous undertaking, as it would be very difficult to gain the confidence of both parties.

GARUD'A or the *Eagle*, called also GARUTMAT or the *winged*, lived in his own *Van* or forest, called from him *Garutmat-van* and *Garutman-van*. *Bámiyan* and the *Mosaical Eden* were situated in the forest of GARUTMAN: and it is remarkable, that the *Parsis*, according to ANQUETIL DU PERRON, call the abode of the supreme being and of the blessed, GOROTMAN, which they represent as a terrestrial paradise. It is near *Goracsha-van* or *Goruc-ban*, as it is pronounced in the vulgar dialects; but by *Musulmans* it is called *Goor-ban* and *Goor-band*. There he flew over mountains, through forests, searching whom he might devour, tearing up their bodies, and devouring their entrails. For VISHNU had given him this boon, saying, you may devour my enemies, and those of SIVA; those who are guilty of constant uncleanness: the *Nasticas*, or unbelievers; those who deal in iniquity, the ungrate-

* Asiatic Researches, vol. iii, p. 412.

ful, those who speak ill of their spiritual guides, or otherwise behave ill to them, or defile their beds: all these you may devour: but do not touch a *Bráhmen*, whatever be his guilt; should you presume to devour him, he will prove a scorching flame in your throat; spare also my servants, and those of MAHA'-DE'VA, and the righteous in general: for if you should transgress, your strength and power will be thereby greatly diminished. VISHNU having thus spoken, disappeared. Long after GARUD'A spying a *Bráhmen* dressed like a *Shabara*, or mountaineer, laid hold of him, and attempted to devour him: but he soon felt a scorching flame in his throat, which forced him to disgorge the priest alive. Some time after he met with a servant of MAHA'-DE'VA, who was rambling stark naked through the woods, and looked like an ideot: GARUD'A sprung upon him; but found his body as hard as the thunder bolt. When GARUD'A saw this, he carried his prey to his den, where he bound him, that he might devour him at his leisure: but he never could make the least impression upon him. The unfortunate prisoner called on MAHA'-DE'VA, who sent HARAJA to rescue him. HARAJA or HARA-CULA requested GARUD'A to release him, saying, you are the chief of birds, this man is a favorite of MAHA'-DE'VA, you also are a favorite of his, set him at liberty, or come and fight me. For a whole month they fought, when GARUD'A's strength failed him: he saw then, that his prisoner was a servant of MAHA'-DE'VA, and recalled to his mind, the words of VISHNU. He then set him at liberty, observing to HARAJA, that in his life he never found so tough a subject.

THE situation of *Goracsha-van* is well known to the *Hindus*; and I have seen many pilgrims, who have visited this singular spot. Near it, in the mountains, according to the sacred books, is situated the forest and place of GARUD'A: there it was visited by

by ALEXANDER and his *Macedonians*. I was not fortunate enough to meet with pilgrims, who had seen this place, which I understand, is seldom visited on account of its being difficult of access; and because few and trifling indulgences only are to be obtained there. They generally place it near the pass of *Shabara*, which was thus denominated from the *Shabars*, whom GARUD'A used to devour. The word *Shabara* is interpreted in glossaries, *Sháli-vastra*, and *Vastracára*, and signifies such uncivilized race of men, as make, and wear for garments, a sort of matting made of grass and roots. The *Shabara*, whom GARUD'A confined in his cave, was a servant of MAHA'-DE'VA: a synonimous term for which, is also PRAMATHAH or PRAMATHAS, whom the *Greeks* have confounded with PROMETHEUS, obviously derived from the two *Sanscrit* words PRAMAT'HA-IS'A, which coalescing according to the rules of grammar, form PRAMAT'HE'S'A. This supposed adventure is posterior to CRĬSHNA: for in his time GARUD'A was in the full enjoyment of his strength and power.

GARUD'A is often represented as a *Griffin*, and the native country of the *Griffins* is placed by western mythologists in *Bactria*: this is also countenanced in the *Puránas*, and we read in the *Himá-chel-c'hand*, that GARUD'A and his brother ARUNA, who now drives the chariot of the SUN, went into *Bactria* and made *Tapasya*, at a place called *Vimalamhu*, close to *Vámíyan*, and near the oracle of UMA or UMASA, which is a name of the EARTH, considered as the *Magna-mater*, and, perhaps from it, is derived the *Latin* word *Humus*. There he married a beautiful woman; the snakes alarmed at his marriage, waged war against him: but they were defeated, one only escaping the general slaughter: who falling at the feet of GARUD'A, said, devour

me not, spare me, *ó! Nágántaca*, or destroyer of snakes. GARUD'A granted his request, and placed him by way of ornament round his neck.

Bactria was also the native country of the *Sacas* and *Sacasenas*; and it is remarkable, that wherever the *Sacas* went, there we find also the *Griffins*.

IT appears, that at an early period some emigration took place from *Bactria* into *Colchis*, the inhabitants of which country were called *Indi* and *Sindi*. There was a powerful tribe called *Augoi*, *Augōn*, *Abasgoi* and *Abasgōn*, which appear to be the same with the present *Afghans* or *Augans*, called *Aspagonæ* by PLINY. These carried with them their original legends, such as the story of PROMETHEUS and the eagle; and in the course of time they even supposed, that the events they alluded to, did really happen in the country they were now inhabiting. According to the *Puránas*, the *Sacas* and *Sacasénas*, leaving *Bactria*, went into the *dwíp* of *Placsha*, or *Asia* the lesser, which was afterwards denominated from them the *dwíp* of *Sáca*. The appellation of *Placsha* or *Placya* in the vulgar dialects, was not entirely lost in the time of HERODOTUS, who takes particular notice of a place called *Placia*, the inhabitants of which, and of the adjacent country, still retained the old language. As the word *Placsha* is sometimes written *Lacsha*, I suspect that the *Legzi* or *Lesgi*, formerly a powerful nation in *Colchis*, were the remains of the ancient inhabitants of the *dwíp* of *Lacsha* or *Placsha*: for they lived formerly in the more southern parts of lesser *Asia*, toward *Syria*, and were the same with the *Leuco-Syri*, perhaps for *Lesgo-Syri*, or *Lachya-Syri*.

DEO-CAL-YUN, the adopted son of the lord paramount of the *Yavanas*, lived in the country of the *Cámboj*,

Cámboj, to the westward of the *Indus*. This is the same country, which, according to the learned, is now called by contraction *Coj*. As the vowel is very short, and of course obscure, every one of the five vowels is indifferently used; thus we have *Caj*, *Kij*, or *Kidge*, &c. In the same manner the name of the country called *Camis*, *Camus*, and *Cambis*, to the south of the *Caspian* sea, is often written and pronounced *Caus*. It includes all that mountainous tract, which extends from *Gazni* to the sea, and comprehended the countries known to the *Greeks* by the names of *Arachosia* and *Gedrosia*, written also *Kedrosia*; indeed, these two denominations signify the same thing, the mountains of *Coj*: for *Roh* in the language of the *Balloches* signifies a mountain, and may be placed, either before or after, thus *Coj-Roh*, *Kej-Roh* or *Kedrosia*; *Roh-Coj* or *Arachosia*. When they speak of the country in general, they say *Coj* only: and when they use the word *Roh* it implies the mountains of *Coj*. The appellation of *Coj* is now restricted to that part which is included in the province of *Macrán* or *Mackrán*, called by the *Greeks* *Macarene*; the chief river of which, was the *Maxates*, now called *Macshid* (*). *Gazni*, the true name of which is *Sasni*, was once the capital cityof that country; hence it is called with propriety *S'asni-Coj* by TAVERNIER, or *Chakeni-couze*: the *Pattans* generally use *k* for *sh*; and very often also for *s*; thus they say, *Pirkhowr* for *Pirshowr*, *Khehr* for *Shehr*, a city. *Gazni* is called *Sasni* by CHRYSOCCORAS; and *Shasni* or *Chassenee*, in THEVENOT's collection of voyages. The present name is *Gazni* or *Casni*; but in the time of TAVERNIER, they said also *Sacni* or *Jacni*.

Roh-Coj, according to the *Balluch* pronunciation, or *Row-Coz*, as softened by the *Pattans*, is the *Arachosia* of the *Greeks*; which includes the districts of

* Step. Bizant advocem *Alexandria*.

of *Gazni* and *Candahar*. *Arachosia* is now called *Cawer* or *Cawerán* : but even this appellation is becoming obsolete. The river *Arachotus* called also *Choaspes*, and *Cophes* is now called *Abeh-Tárníc*, or the river *Tarníc*. It rises in the hills to the north by east of *Gazni* ; and after having watered the whole valley of *Arachosia*, it loses itself in a marsh about four miles to the south of *Candahar* : and when the rains are abundant, part of its waters run into the *Arghand-ab*, which falls into the *Hir-mend*. One of the emperors of *Gazni* had its waters dammed up in the hills, above that city, which are let out occasionally to water the fields, in which it is lost: when the rains are copious, the superabundant waters form a small stream, which reaches as far as *Carabaug* ; and afterwards forms in some low grounds to the south east, a small marsh or lake. The present river *Arachotus*, is formed by a small stream, which rises a little above *Mucur* in the above marsh : hence it is often called the water of *Mucur*.

It was called *Choaspes*, or rather *Cho-Asp* from the following circumstances. Between the cities of *Zuffá* and *Kálá-át* (a plural form implying towers or forts), there is in the bed of the river *Tárníc* a deep hole, supposed unfathómable ; called in the language of that country *Sup*, in *Sanscrit Gopa*, and in some dialects *Gopha*, from which, probably, are derived the words Γυπη and Κυπη, *Coop*, *Cove*, *Cave*, and in *Latin Cavus* and *Cavea*, a *Cave*, a *Coop*, or *Cage*. An unwary traveller, riding upon a mare great with foal, stumbled into it and both were drowned. During the struggles the mare brought forth a foal, who was received by the fairies residing in this cave, and nursed by them. He is often seen grazing on the banks of the river, and at other

other times his head only is seen above the waters; from that circumstance the surrounding hills are called *Sereh-Asp*, or the horse's head. As the foal was grazing one day in the adjacent meadows, he was seen by a traveller, who admiring his shape, laid hold of him and rode him for a long time; when returning the same way, he did *Jelo-rez*, or relax the reins;* the horse ran away, and jumped into the cave, or hole. From the circumstance of his relaxing the reins, the surrounding hills are also called *Jelo-rez*. They might be called with propriety *Coh-Asp*, or the mountains of horse: and they were thus called once, or *Cho-aspa* as it appears from PTOLEMY, who has applied this appellation to a city in the vicinity, but with greater propriety called *Cophes* by PLINY; a word obviously derived from *Gopa, Gopha* pronounced in different dialects, *Cup* and *Sup, Cuph* and *Suff*, or *Zuph*. It is called to this day *Zuffa-* or *Shehr-zuffa*, the town of *Zuffa*. It is called *Zupha* in the *Peutingerian* table, in the road from *Fociana* (*Fusheng*), to *Asbána*, or *Cabul*. The *marsh*, to the south of *Candahar*, is obviously the *Arachosian marsh* of the ancient geographers†. The ancient kings of *Gor* were natives of *Zuffa*, or *Zuf*; and gave that appellation to *Gor*, the place of their residence, but now desolate: the place where it stood is called *Gor-moshcán*.

PTOLEMY mentions a town called *Arachotus*: but surely *Roh-Coj* could not be the real name of a city, which probably was *Coj-vára*, or *Cojhar, Cojwar*, and *Cajhur*: it is the *Kodzar* and *Kozdar* of *Persian* authors; literally the habitation in the country of *Coj*, and, by implication the capital city of *Coj*. The kings of the *Yavanas*, and DÉO-ÇA'L-YUN re-

* *Jelo-rez kerdun* in *Persian*, signifies to relax the reins.
† THIS marshy lake it mentioned by TAVERNIER.

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sided at *Sasni*, (now *Ghazni*), which word in *Sanscrit* signifies *command*, and by implication, the seat of empire. They generally pronounce this word *Ghazni*; because, it is said to be derived from *Ghezz-ni*. *Ni* is *foundation*, and *Ghezz* is the *Tamarix*, which abounds in that country. For they say, that, when the *Musulmans* invaded that country, being surrounded by an immense host of *Cafirs*, or unbelievers, they made a tumultuary rampart of loose earth, and *tamarix*; from which circumstance the place was called ever after *Ghezz-ni*.

By a strange mistake, the country of *Arachosia*, and the river which flows through it, have been placed by the learned Danville, to the south of *Candahar*; had this famous geographer recognised *Gazni*, in the *Shakeni-Couze* of Tavernier, this mistake, I believe, would not have happened. I have had the satisfaction to converse often with natives of *Candahar*, of *Kálá-át-Násir-Khan*, and *Cojhur*, and other intermediate places; and have obtained sufficient local knowledge of that country, to rectify this error. *Kálá-át-Násir-Khan* is the *Kálát-Berlook* of the *Ayeen-Acbery*: it is also the *Al-Casr* of the *Nubian* geographer, a word of the same import with *Kálá-át* a plural form. It was surnamed *Násir-khán*, from its last governor, who died some years ago. In its vicinity is the town of *Sorra* mentioned by the *Nubian* geographer: it is better known by the name of *Sorra-Bac* or *Sorra-Beyck*. *Beyck* is a name common to several places in that country: they are situated among mountains denominated from them, by Ptolemy. *Becii* or *Baicii montes*, as we read in Mercator's maps; or *Baitii* in the original: for in ancient manuscript, *t* and *c* are often mistaken the one for the other. In the *Puránas* they are called *Su-Bhacsha*. The real name of *Gazni* was originally *Sabul*, *Zabul*, or *Saul*, as it is written

written by CHRYSOCOCCAS: hence it appears to be the *Ozola* of PTOLEMY. It is probably the *Oscanidati* of the *Peutingerian* table, twenty-two *farsacks* from *Asbáná* or *Cabul;* and thirty-five from *Zuyha Oscanidati* is perhaps corrupted from *Sacni-tut*, or the *mulberry grove* of *Sacni*. *Tut* in the *Pastoo*, as well as in the *Persian* and *Hindwi* languages, signifies a mulberry. In composition, it implies a mulberry grove. This tree grows spontaneously in that country, in the plains: and the *Pattans* generally pitch their tents, or erect their huts near groves of it. Its fruit is exquisitely delicious: and we often hear *Pattans* in *Hindustan* sighing after their mulberry groves, wishing to die under their shades.

THE famous peak of *C'haisá-ghar*, which we mentioned before, is situated on the road between *Gazni* and *Derá-Ismáhil:* the *Musulmans* call it *Tuct-Suleiman*, or the throne of SOLOMON; and to the adjacent mountains they have given the name of *Coh-Suleiman*. It is seen at the distance of one hundred coss, and begins to be visible near the extensive ruins of the famous city *Sángalá* about sixty miles west by north of *Lahore*. *Sángalá* is situated in a forest, and though desolate and uninhabited, it preserves still its ancient name. It was built by the famous PURU or PURUS, great grandson of ATRI. It is called *Sinkol* in *Persian* romances, and its king, raja SINKOL. It has been confounded by ARRIAN with *Sálgalá* or *Sálgadá*, which is now called *Calanore;* close to which is still an ancient place called *Salgéda* to this day, and its situation answers most minutely to ARRIAN's description. *Sálgalá* and *Ságadá*, are two derivative forms, the first is *Sanscrit*, and the second is conformable to the idiom of the dialects of the *Pánjáb*. The summit of *C'haisá-ghar* is always covered with snow; in the midst of which are seen several streaks of

 a reddish

a reddish hue, supposed by pilgrims, to be the mark, or impression made by the feet of the dove which NOAH let out of the ark. For it is the general and uniform tradition of that country, that NOAH built the ark on the summit of this mountain, and there embarked: that, when the flood assuaged, the summit of it first appeared above the waters, and was the resting place of the dove, which left the impression of her feet in the mud, which with time, was hardened into a rock. The ark itself rested about half way up the mountain, on a projecting plain of a very small extent. There a place of worship was erected, near which is a caldron of copper of such dimensions, that one hundred maunds of food may be dressed in it at the same time. Near it is an hermitage inhabited by several *Derveishes*, and a little above, is a flag. The inhabitants of the country resort there occasionally on *Fridays*. With respect to the foot-steps of the dove, they are known only by tradition, for the inhabitants of that country assert, that they have never heard of any body going up so high on account of the ruggedness of the mountain, and of the snow. The *Bhauddhists*, who were the first inhabitants of that country, are, I am told, of the same opinion as to the place where the ark rested; but hitherto I have been able to procure a single passage only, from the *Buddha-dharma-chárya-Sindhuh*, in which it is declared that SHAMA or SHEM, travelled first to the north east, and then turning to the north west, he arrived on the spot, where he built afterwards the town of *Bámíyan*. SHAMA they say, having descended from the mountain of *C'haisághar*, travelled north east, as far as the confluence of the *Attock* with the *Indus*; where he made *Tapasya*: he then proceeded north west to *Bámíyan*.

THE *Pauranics* insist, that, as it is declared in their sacred books, that SATYAVRATA made fast the

ark to the famous peak, called from that circumstance, *Nau-banda*, with a cable of a prodigious length, he must have built it in the adjacent country. *Nau* (a ship) and *bandha* (to make fast), is the name of a famous peak situated in *Cashmir*, three days journey to the north north east of the purganah of *Lar*. This famous place is resorted to by pilgrims, from all parts of *India*, who scramble up among the rocks to a cavern, beyond which they never go. A few doves frightened with the noise, fly from rock to rock: these the pilgrims fancy to be their guides to the holy place, and believe, that they are the genuine offspring of the dove, which NOAH let out of the ark, at all events in the numerous legends, which I have extracted from the *Puránas* relating to SATYAVRATA and the ark, no mention is made of his letting out the dove: the whole story I shall give in abstract. SATYAVRATA having built the ark, and the flood increasing, it was made fast to the peak of *Nau-bandha*, with a cable of prodigious length. During the flood, BRAHMA' or the creating power was asleep at the bottom of the abyss: the generative power of nature, both male and female, were reduced to their simplest elements, the *Linga* and the *Yoni*, assumed the shape of the hull of a ship since typified by the *Arghá*; whilst the *Linga* became the mast.* In this manner they were wafted over the deep, under the care and protection of VISHNU. When the waters had retired, the female power of nature appeared immediately in the character of *Capotés'wari* or the dove, and she was soon joined by her consort, in the shape of *Capotés'wara*.

THE mountains of *Coh-Suleiman* are sometimes called by the natives the mountains of the dove: the

* MAHA'-DE'VA is sometimes represented standing erect in the middle of the *Arghá* in the room of the mast.

whole range as far as *Gazni* is called by PTOLEMY the *Paruetoi mountains*, probably from the *Párvata* or *Páravát*, which signifies a dove. The peak of *C'haisa-ghar* is called also *Cálá-Roh* or the black mountain : the summit alone being covered with snow, is not always seen at a great distance ; but the body of the mountain, which looks black, is by far more obvious to the sight. *Persian* romances say, that there were seventy or seventy-two rulers called SULEIMAN, before ADAM ; this has an obvious relation to the seventy-one *Manwantaras* of the *Hindus :* and of course NOAH or SATYAVRATA was a SULEIMAN.

THE followers of BUDDHA acknowledge that the ark might have been fastened to *Nau-bandha* near *Cashmir ;* but surely they say, the ark could not have been riding perpendicularly above this peak, and such a vessel required a vast length of cable : in short though the cable was made fast at *Naubandha*, the ark was riding above *C'háisá-ghar*. According to the *Pauranics* and the followers of BUDDHA, the ark rested on the mountain of *Aryavarta*, *Aryawart* or *India*, an appellation which has no small affinity with the *Araraut* of scripture. These mountains were a great way to the eastward of the plains of *Shinar* or *Mesopotamia*, for it is said in *Genesis*, that, some time after the flood, they journeyed from the east, till they found a plain in the land of *Shinar*, in which they settled. This surely implies that they came from a very distant country to the eastward of *Shinar*. The region about *Tuckt-Suleiman* is the native country of the olive tree, and I believe the only one in the world. There are immense forests of it on the high grounds ; for it does not grow in plains. From the saplings, the inhabitants make walking sticks, and its wood is used for fuel all over the country ; and, as PLINY justly

justly observes, the olive tree in the western parts of *India*, is sterile, at least its fruit is useless, like that of the *Oleaster*. According to FENESTALLA, an ancient author cited by PLINY,* there were no olive trees in *Spain*, *Italy* or *Africa* in the time of TARQUIN the eldest. Before the time of HESIOD, it had been introduced into *Greece* : but it took a long time before it was reconciled to the climate, and its cultivation properly understood : for HESIOD says, that, whoever planted an olive tree, never lived to eat of its fruit. The olive tree never was a native of *Armenia* ; and the passage of STRABO, cited in support of this opinion, implies only, that it was cultivated with success in that country. But let us return to SHARMA and his disciple SARASALA, the legends concerning whom are to be found in the *Buddha-dharma-chárya-Sindhuh*.

"THE chief of the followers of BUDDHA is endowed with knowledge : great are his riches and power. "He shewed mercy to the living creation ; and instructed them all in their respective duties : he was "deeply skilled in the *'Sastras*. He is the abode of "human and divine knowledge, which he imparts to "all. He, whose name is SHAMA, is the chief of "living beings : he gives an increase of pleasure to "every body : he travels over the whole world, instructing every one in their respective duties. Once "he went north east, then turning toward the northwest, he arrived at the *Himáni* mountains. There "he saw a variegated hill : it was beautiful : there "were numerous springs : all sorts of animals and "chirping birds. In this forest, he, whose name is "SHAMA-MAHA'-MUNI, began to perform *Tapasya* : for he saw that the country was *Tapobhumi*, "(land fit for the performance of religious rites.)

* PLINY B 12 C. 6.

" Here, says he, I shall soon obtain the end of my
" *Tapasya*. JINE'SWARA, the god of gods, was
" pleased: he granted his boon: JINE'SWARA, who
" is BHAGAVAN, for the good of mankind, granted
" his boon: from *daya* (mercy) comes *ardra* (soft-
" ness of heart:) to do good to all men you were
" born! Before this he was famed as a good
" man; but when he had obtained his boon!* As
" he lived in an uninhabited forest, pilgrims
" suffered much: through the efficacy of his *Ta-*
" *pasya*, he built a town, which he called *Váméyan*:
" *yan*: it was *vámá* (beautiful), hence it was call-
" ed *Váméyan*. Wood, grain, and grass, were in
" plenty. He placed beautiful flags on all the gates
" and posterns. He made also beautiful *(chetwara)*
" squares, where grain and wealth were displayed.
" He called in the four great tribes: gold and jewels
" abounded in their houses. In one house were of-
" ten seen an hundred women, shining with gold and
" precious stones: here the drum beat: there they
" danced: every body was pleased. From the noise
" in every street, in every house, it seemed as if the
" whole town spoke. In every house there were
" constantly feasts and rejoicings: it was like the
" town of the gods. SHAMA instructed them all in
" their respective duties. In this city men and wo-
" men follow the religion of BUDDHA, and nobody
" says there, why do you worship BUDDHA? SHAMA
" having thus obtained the object of his wishes,
" withdrew to an adjacent hill, where he erected a
" beautiful and strong building for his residence. He
" kept his internal *indris*, or senses, under subjec-
" tion; hence he was called SHAMA. He is con-
" stantly performing the *Yoga*: upon a hill fit for
" such performance, he seated himself: there re-
" sides the chief of the forms of BUDDHA." This hill
" is now called *Ghulghuleh*.

* So it is in the original: but it is understood, that, after he had obtained his boon, he was considered as a superior being.

" THERE

" THERE is another image-like resemblance of
" SHAMA-SHARMA in his disciple : he is constantly
" performing *Tapasya :* he studies *daya* (mercy),
" and observes most rigidly the dictates of justice.
" He waited with most scrupulous obedience on
" SHAMA, his spiritual guide. Lust had no power
" on him : in him were united human and divine
" knowledge : he became *Paranishta* (he dwelled
" in god) and great were the powers of his under-
" standing. For ten years he made *Tapasya,* during
" which he left off eating and drinking : he felt no
" uneasiness on that account : he lived upon the
" winds : thus he kept up the efficacy of his religi-
" ous austerities. He is a great penitent ; con-
" stantly thinking on the deity. He did not make
" *Dambha,* that is to say, he did not perform religi-
" ous acts for the sake of worldly praise. Thus he
" made a most rigorous *Tapasya.* Then JINA-WA-
" RA (or the lord of the forms of *Jina*) was pleased :
" JINA-DE'VA said ; why are you making *Tapasya ?*
" What is your wish ? You have made a most rigo-
" rous *Tapasya,* even to the peril of your life : get
" up, get up : it shall be well with you : ask your
" boon ? RASALA, such was his name, said, to
" day have I obtained the fruit of my labours : I
" have seen you : I have seen you ! This is all I
" wanted : what is the rest to me ! This was my
" only object and desire. I was like a poor man,
" who is oppressed ; but on my complaining to you
" I have obtained redress : be merciful. JINA said
" your heart is like a beetle,* who constantly sticks
" to me : your name before was RASALA (he who
" delights in the honied juice (*Rasa* of flowers :
" now it shall be SA-RASALA (who delights much
" in it). All the world shall call you SA-RASALA :

* In *Sanscrit Bhranga ;* in *Greek Bruchos* and *Brucos ;* hence *Sa-rasala* is called *Bhranga ;* and *Brongus* by NONNUS.

" ask your boon. The *Muni* said he was *nispraha*
" he wanted nothing: only give me the end of my
" *Tapasya*: that I may go unmolested through the
" three worlds, and see you every where; let me
" also retain the efficacy of my *Tapasya*. O chief
" of the forms of JINA, this is my boon. JINA-VA-
" RA who is ISWARA, granted it, and disappeared.
" The son of the Raja kept up the efficacy of his
" *Tapasya*; and thus became *Avyáhataswairagati*
" he went every where unmolested: he became *Sa-*
" *madraca*; friends or foes, men and women were
" the same to him. Such was his *Tapasya*, that he
" even surpassed his *Guru* SHAMA; who, seemingly,
" became *Spardhá*, saying why do you wish to sur-
" pass me. He endeavoured to spoil his *Tapasya*,
" and to corrupt his heart: but in vain. Still he
" waited on him with humility, without answering,
" without complaining. When SHAMA saw this, he
" said with astonishment: he is a good man (*Sád-*
" *hu*): his name then shall be *Sádhu*. Thus he
" obtained a boon from his spiritual guide. SA-RA-
" SA'LA is constantly making *Tapasya* thinking on
" JINESWARA.

" Who is he, whom all the world call SA-RASA'-
" LA? You are the chief of the *Yates*: relate the
" whole to me. Who was he before? Why did
" he come into this forest? Why is he making *Ta-*
" *pasya*? Be exalted and relate the whole to me.
" The chief of the *Yatis* said: he is the king of
" the country of *Calinga*. He had forsaken the
" paths of righteousness, and dwelt among women,
" he was proud and his heart was fixed on them.
" He was like the *Sarasa**, like the beetle, who de-
" lights on the honied juice (*Rasa*) of flowers: hence
" he was called RASA'LA. Once in a former state,

* A bird of the crane kind.

" he

"he performed a most meritorious action; which
"proved afterwards of great service to him. Some
"private business having brought him to *Mat'hurá*;
"his friends prevailed on him to perform the usual
"ablutions: he gave alms also. His heart was puri-
"fied from guilt, and his iniquity removed. At that
"time the chief of the *Munis* of JINA (SHAMA) came
"to *Mat'hurá*, and shewed to him the path to rec-
"titude. He treasured up every word: acknow-
"ledging the truth, he was irradiated. From that
"moment he held for nothing his crown, his wife,
"his children, and his wealth. He disposed of his
"effects among the *Yatis*, and having resigned his
"crown to his son, and recommended his wife to
"him, he withdrew to the forests. There he made
"*Tapasya*, thinking on JINAVARA. Thus I have
"related the whole to you."

BY *Calinga*, the *Pauranics* understand the sea coasts at the summit of the bay of *Bengal*, from point *Godaveri* to cape *Negrais*. It is divided into three parts. *Calinga* proper, which extends from point *Godaveri* to the western branch of the *Ganges*; the inhabitants of the country are called *Colingee* by ÆLIAN and PLINY. *Madhya-Calinga* or middle *Calinga* is in the *Delta* of the *Ganges*, and is corruptly called *Modo-Galinca* by PLINY. *Moga-Calinga* extends from the eastern branch of the *Ganges* to cape *Negrais* in the country of the *Migas* or *Mugs*: this is obviously the *Macco-Calingæ* of PLINY. *Calinga* implies a country abounding with creeks and is equally applicable to the sea shore about the mouths of the *Inaus*.

SHAMA, and his disciple SA-RASA'LA, are perhaps the same, who are called SAM and ZAL-ZER or SAL the white in *Persian* romances: certain it is that they lived in that country. The father of SAM was NERIMAN,

NERIMAN, which if a *Sanscrit* appellation, is very applicable to NOAH : *nere* signifies a wave in *Persian*, and *nara* water in *Sanscrit*. SAM may be the same with SIAMEC the son of KEY-UMURSH ; for SHARMA and SHARMACA, SHAMA, and SHAMCA are various appellations of the patriarch SHEM. As to KEY-UMURSH or king UMURSH, it is a denomination given equally to ADAM aad NOAH in *Persian* romances, and with great propriety, for UMARSHA in *Sanscrit* signifies the lord of UMA, the female power of nàture and the earth. In that section of the *Scanda-purána* called the *Himáchel-c'handa*, it is said that BUDDHA the ninth *Avatára* of VISHNU appeared in the characters of SHAMA or SHEM ; by which we must understand, according to the learned, that SHARMA an incarnation of VISHNU reappeared as BUDDHA. Indeed the character of SHARMA is well preserved throughout : for this famous patriarch is represented of a most benevolent and mild disposition, with a very weak constitution. When BUDDHA was seven years above eight old, he was invested with the sacerdotal cord. He went immediately to *Vámigram* or *Vámíyam* in order to defeat the schemes of the *Daityas*, who were assembled in its vicinity, to perform solemn sacrifices and the most rigid acts of devotion in order to obtain the dominion of the world. *Vámíyan* is declared to have been at that time a most magnificent city. There the gods and many holy men were assembled in order to pay their respects to VISHNU and implore his assistance against the *Daityas*. BUDDHA in the shape of a *Sannyási* presented himself to them, and was kindly received : he then told them, that every sacrifice of an animal was an abomination, and that even ablutions were wicked, because small insects might be killed by bathing. Such was his eloquence, that the *Daityas* wept bitterly, abandoned all thoughts of sacrifice and ablution, and thereby were frustrated in

their

their scheme of attaining the dominion of the world. After this memorable victory, great rejoicings were made throughout the whole town of *Bámíyan*: for the *Bauddhists* insist that the religion of BUDDHA existed from the beginning.

I CANNOT better conclude this essay than by making a few remarks on the supposed prohibition, imposed on every good *Hindu* from crossing the *Indus*; in order to obviate some objections lately started, against the possibility of their being acquainted with the most ancient transactions in the western parts of the world. This prohibition is certainly very ancient: for it is mentioned by DIODORUS the *Sicilian*; who says, that king STAUROBATES, in *Sanscrit* STHA'WARA-PATI was prevented by the soothsayers, in consequence of certain prodigies, from crossing the *Indus*.

BEFORE we proceed, it is proper to ascertain, what part of the *Indus* is properly called *Attaca* or the forbidden. From the unanimous report of the natives of that country, either *Hindus* or *Musulmans*, learned as well as simple, I am fully satisfied that the *Landhi-Sindh*, which rises from a lake in the vicinity of *Bámíyan*, and falls into the *Sindh* above *Attaca-Varanesa* or *Attock-Benares* is the real *Attock* or forbidden river: this property however it communicates to the greater *Sindh* from the place of their confluence down to the sea. The *Indus* is called *Sindhuh* or *Sindhus* in *Sanscrit*, *Ab-Sind* or water of *Sind* by *Persian* authors: but in the *Pastoo* language it is called *Abai-Sin* or father *Sin*. The waters of the *Landhi-Sin*, or lesser *Sind*, are remarkable for their limpidity: and being very deep, it gives them a dark azure appearance; whilst the waters of the *Abai-Sin*, are turbid: and above *Tor-Bélah* or the black *Bélah** toward *Der-bend* and

* *Tor-Bela* or *Tor-Belam*, thus called from the banks of black sand

Bawersa

Bawersa they are of a milk white colour, from the immense banks of chalk in its bed. *Bawersa* called also *Bawersa-da* and *Bawersa-di*, is the *Barisadis* of the historians of ALEXANDER*. Below *Tor-Bélah* or *Tor-bélam*, and its black sands, the waters of the *Sind* are blackish, between the high mountains about *Attock* and the fort of *Nilab*, the gloom encreases much their black appearance. The *Landi-Sin* from the dark azure appearance of its waters is with great propriety called the *Nil-ab* : the inhabitants know of no other river distinguished by that epithet. They seldom, however, make use of it. At *Goorband*, it is called the *Goor-band* river ; near *Baran*, the *Baran* river. Near *Palanghur*, the *Pleygrium* of STRABO, in the district of *Cameh*, it is called *Cameh* river. *Gorydalis*, mentioned by STRABO near the pass of *Kheibar*, is called now *Gurdyáli*, and *Gurdeh* : and *Bando-Béna*, is the band or dam of *Béna* or *Béyanah*, or rather it implies *Béyanah* near the band or dam, which, I suppose to be the royal wall in the country of *Opianeh* mentioned by STEPHANUS of *Byzantium* : it is near *Peishour*.

ANCIENT geographers were as much perplexed as the moderns, with regard to the rivers, to the westward of the *Indus* The *Choaspes*, and the *Cophes*, are represented as two distinct rivers : but I suspect that, like the river in *Arachosia*, the same river was

in its vicinity: there probably ALEXANDER crossed the *Indus*. *Ac-Belam* or *Ec-Bolima* was probably near *Hazru*, about half way between *Tor-Belam* and the fort of *Attock*, there are many banks of white chalk ; from which, it was probably called *Ac-Belam*, or the white *Belam*.

* *Bawersadi* is a derivative form, from *Bawersa*, according to the idiom of the dialect of the *Panjab*, in which, as well as all over *India*, derivative forms are used in the room of the primitive : thus we say *Bengal* for *Banga* : thus the town of *Nahusha* or *Nysa*, is called *Nisha-dapuram* for *Nisha-puram* or *Nisha-pur*, in a fragment cited by Sig. BAYER.

called

called by two different names. The *Choaspes* has been also mistaken for the *Cous* of PTOLEMY, which last comes from the country of *Cash-ghar*.

THE appellation of *Cophes*, as we have seen before, is derived from the words *Gopa* or *Gopha:* and, though never used by the natives, yet, they assert, that this river passes, through an immense *Gap* in the mountains of *Bámíyan*, or in *Sanscrit* through a large *Gopa* or *Gopha*, from which the *English* words *Gap*, to *Gape*, and in *German Gaffen* are probably derived. Tradition is now silent with respect to the appellation of *Choaspes:* but we read in *Ctesias* of certain animals in this river, somewhat in the shape of river horses. This author calls it *Gaitas;* and it is the same with the *Geudis* or *Geuthis* of NONNUS; for BACCHUS crossed this river in his way from *Nicæa*, or *Cabul*, to the place of abode of the benevolent and hospitable BRONGUS among the *Samach'hes* of *Bámíyan.* On the bank of this river was the town of *Alybe* or *Alyben* in the oblique case * which is called to this day *Elben* and sometimes *Elybend.* It is at the foot of the mountains, near the entrance of a pass leading to *Bámíyan.*

THE *Gaitas* and *Geuthis* being the same river with the *Cophes*, I strongly suspected that the two former appellations are corrupted from the latter. Of this we have a remarkable instance in the *Greek* and *Latin* languages. The words *Cœpa* and *Cœpe* in *Latin* or *Gaipia, Gaiphu* or *Gephu*, in old *Greek*, are pronounced and written in the more modern *Gêthua* and *Getia.* Thus the tree called *Tála* in *India* and also by ARRIAN, is written *Tala* by PLINY: thus the word *Paulus* is pronounced *Taulus* in the countries bordering on the *Nile:* and the materials from which

* NONN. *Dionys.* lib. 17. v. 33, &c.

NONNUS

NONNUS compiled his *Dionysiacs* were originally written in these countries; of which NONNUS himself was a native.

THE *Hir-mend* which has its source in the same lake with the *Landhi-Sin*, and flows toward *Persia*, is called also *Attock*, so that it seems, that the whole country between the *Hermend* and *Indus*, was equally *Attaca* or forbidden. I have not been able yet to discover the origin of this prohibition: but I believe it extended at first to civil purposes only. In this manner the *Hara-Modren* in *China* is called *Attock* by *Hindu* pilgrims, who do not consider it, in the least, as a religious prohibition: this civil prohibition is very ancient for it is recorded by PLINY*. The *Máha-nadi* near *Cuttack* is also called *Attock*, but this prohibition is very little regarded.

IN that dreadful war which we mentioned in our former essay† between the *Lingancitas* and *Yonijas* or *Yavanas*: the former stood their ground pretty well at first: but were in the end defeated and shamefully routed in the battle, through the efficacy of the sacred *Yoni*, MAHA'DE'VA enraged, was going to destroy them with the fire of his eye: but PA'R-VATI' interposed, and to appease him made use of the same artifice, the old woman called BAUBO, did to put CERES in good humour, and shewed him the prototype of the *Lotos*. MAHA'DE'VA smiled and relented; but on the condition only that they should instantly leave the country. Whether this legend allude to a real war between the worshippers of the *Linga* and *Yoni*, or be a mere physiological allegory I cannot determine: be this as it may, the *Yavanas* withdrew to the countries between the *Indus*, and the *Hirmend*, and the *Landhi-Sin* or *Nilab*: every

* Lib. 6, c. 22. † *Asiatick* Researches, vol. 3. p. 362.

inter-

intercourse was forbidden on all sides: thus in my humble opinion, these three rivers were denominated *Attaca* or forbidden. The *Yavans* it seems were expelled afterwards with their chief DE'O-CA'L-YUN by CRISHNA, and his brother BALA or BALAS, the *Indian* HERCULES, called also BELUS. This I suppose was the *Bactrian* war alluded to by NONNUS in his *Dionysiacs*. It was then that, *Indian* HERCULES besieged in vain the famous fort of *Aornos* called also *Avernus* on the banks of the *Indus*. It has preserved its ancient name to this day being called *Varanas* or *Benares*: it is more generally known by the name of *Attock*. It was surveyed some years ago by my friend MIRZA MOGUL BEG, and his description of that famous place, answers minutely, to that given by the historians of ALEXANDER, of the fortified rock of *Aornos**.

THERE are four rivers, which were once much dreaded by a religious people according to the following text:

Carmanásá jala sparshát; Caratoyá vagáhanát:
Gandací báhutaranát: Sindho párégamáttathá.
Evam carma Dwija curvan punah Sanscáram arhati.

BY which it is forbidden even to touch the waters of the *Carmanásá*, to bathe in the *Caratoyá* (a river in *Bengal* called *Curratya* in the maps), to swim in the *Gandaci*, and to cross the *Indus*. The inhabitants of the countries on the banks of these rivers, claim however, an exemption, which is admitted by the rest of the *Hindus*: and on the banks of the *Carmanásá* live many *Bráhmens* who daily perform their ablutions in it, and drink of its waters; and to my knowledge they are not considered as defiled in the least: on the contrary they are in ge-

* To the north north east of *Attock-Benares*, about eighteen miles distant, is the town of *Bazar* near the western banks of the *Indus*: it is the *Bazira* of the historians of ALEXANDER.

neral

neral highly respected at *Benares*. The prohibition with respect to the three other rivers, has never been much attended to; but their aversion to the *Carmanásá* is now as great as ever: by the contact alone of its baneful waters, pilgrims suppose that they lose the fruit and efficacy of all their religious austerities and pilgrimages: and they always cross it with the utmost caution. With respect to the *Indus*, my learned friends here agree, that the sin, if any, consists only in crossing the river: and that it by no means implies any prohibition to go and remain in the countries beyond it. Besides you may easily go to *Bámiyan* without crossing any of the forbidden rivers, by crossing the *Indus* above its confluence with the *Attaca:* for in all the prohibitary laws, you may safely adhere to the latter. They informed me also that in the time of ACBAR, who greatly favoured the *Hindus*, the numerous bands of *Rajpoots* in his service, having been ordered to cross the *Indus* to chastise some refractory *Pattan* tribes, they informed him, that they were forbidden to cross this river. The emperor wrote to them, that the earth and its rivers were the lord's, and that the prohibition was of course more *in their heads*, than consistent with reason: however if they conceived *in their hearts* that it was improper to cross, by all means to abstain from it. On the receipt of this letter, the *Rajpoots*, with the *Bráhmens* who accompanied them, crossed the *Attock* immediately.

THE numerous *Bráhmens* who live in *Iran*, cross it daily, without any scruple whatever, as well as those of *Multan*, and other adjacent countries. Those of *Multan* jocularly say, that, as the true bed of the river is not ascertained, they may cross it with impunity. The truth is that the *Indus* ran formerly a great way to the westward of its present channel, through the *Nulla-Sancár*, which branches out of the *Indus* below

low *Dérá-Ismáhil.* MIRZA-MOGUL-BEG surveyed it some years ago as far as the parallel of *Multan*, where his survey ended. But he was informed, that it ran a great way to the south in a direction almost parallel to the *Indus*, with which it communicates occasionally through the various branches. The *Nulla-Sáncára* being the old bed of the *Indus* is of course considered as the true boundary of *Indostan*, and was admitted as such in the treaty of peace between NADIR-SHA'H and the emperor of *India*. This dereliction happened before ALEXANDER's time, as it was recorded by ARISTOBULUS, according to STRABO.

I CANNOT help taking notice of a curious observation made by a learned *Bráhmen*, that whosoever prohibited the crossing of the *Attock*, meant only that no body making use of the usual modes known at that time, should presume to cross it: but if he could leap over it, or cross it in a balloon, or astride a wild goose, or any other bird, which may be effected through magick, there could be no harm whatever. This strange idea brought to my recollection a whimsical story of the *Musulmans* who inhabited the country of *Sind* or *Tata*: they fancy ALEXANDER by magical art conveyed his whole army over the *Indus*, every man of his riding astride a wild goose. ALEXANDER was pretty successful in *India*, they conceive that this would not have been the case if he had crossed the *Indus* either in boats or by swimming; and the most obvious method he could adopt, in their opinion, was to convey his soldiers in the above manner.

WHEN the unfortunate RAGHU-NA'TH-RA'YA or RAGOBA, sent two *Bráhmens* as embassadors to *England*, they went by sea as far as *Suez*, but they came back by the way of *Persia*, and of course

crossed the *Indus*. On their return they were treated as outcasts; because they conceived it hardly possible for them to travel through countries inhabited by *Mlec'h'has* or impure tribes, and live according to the rules laid down in their sacred books: it was also alledged, that they had crossed the *Attaca*. Numerous meetings were held in consequence of this, and learned *Bráhmens* were convened from all parts. The influence and authority of RAGHU-NA'TH-RA'YA could not save his embassadors. However the holy assembly decreed, that in consideration of their universal good character, and of the motive of their travelling to distant countries, which was solely to promote the good of their country, they might be regenerated and have the sacerdotal ordination renewed. For the purpose of regeneration, it is directed to make an image of pure gold of the female power of nature; in the shape either of a woman or of a cow. In this statue the person to be regenerated is enclosed and dragged through the usual channel. As a statue of pure gold and of proper dimensions would be too expensive, it is sufficient to make an image of the sacred *Yoni*, through which the person to be regenerated is to pass. RAGHU-NA'TH-RA'YA had one made of pure gold and of proper dimensions: his embassadors were regenerated, and the usual ceremonies of ordination having been performed, and immense presents bestowed on the *Bráhmens*, they were re-admitted into the communion of the faithful. The two culprits made a very able defence, and had it not been for some irregularities at *Jedda*, where water is brought from a place about ten or twelve miles distant: it is the general opinion, that they would have been acquitted: for they were men of unexceptionable character, and of course they were to be judged in great measure from their own deposition, and declaration of all circumstances. In vain they pleaded necessity, and referred to the conduct of

of VISVAMITRA and other holy men as a precedent in such circumstances. It was answered, that such cases were inadmissible as precedents in the present age.

No such prohibition however, is mentioned in the *Purànas*, or in any of their sacred books of great antiquity. On the contrary, we see in the *Purànas* many holy men constantly crossing the *Indus*, and going even as far as the sacred isles in the west. There are *Bráhmens* to this day, and *Hindus* of all denominations crossing the *Indus* to visit the holy places in the west: but these persons have renounced the world, and retain but few practices of their classes. Though highly respected, yet no body presumes to eat, or communicate with them; but they go in crowds to receive their blessing. We have mentioned before, that *Bráhmens*, and other *Hindus*, living in the countries, on either side of the *Hindus* claim an exemption from all ecclesiastical censure, on that account; and though in general they are not much respected at *Benares*; yet their claim is admitted as good, and valid.

XIII.

ON THE ANTIQUITY
OF
THE SURYA' SIDDHA'NTA,
AND
The Formation of the Astronomical Cycles therein contained.

BY MR. J. BENTLEY.

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1. THE *Suryá Siddhánta* is generally believed to be the most ancient astronomical treatise the *Hindus* have, and according to their notions is supposed to have been received through divine revelation at the close of the *Satya yug*, of the 28th *Maha yug*, of the 7th *Manwantara:* that is about 2164899 years ago.

2. THAT the *Hindus* are an ancient people is generally allowed, and proved beyond a doubt by historical evidence; but that they are possessed of astronomical works, of such stupendous antiquity, as the *Suryá Siddhánta* is pretended to be, is a circumstance not warranted by the strictest investigation.

3. SEVERAL of the learned have written on the laws, manners, customs, &c. of the *Hindus*, but it is only within a few years past, I believe, that attempts have been made to investigate, through the medium of their astronomical works, &c. the truth or falsehood of their pretensions to the high and monstrous antiquity they assume to themselves above all

4 other

other nations. M. BAILLY, in the year 1787, published at *Paris*, a whole quarto volume on the subject of the *Indian* astronomy; and Mr. PLAYFAIR, in the year 1789: published a paper on the same subject in the *Edinburgh* transactions. The principles, however, of the *Hindu* systems of astronomy, being unknown to these gentlemen, and differing widely in many respects from that of the *Europeans*, the conclusions drawn by them respecting the antiquity of the several astronomical tables mentioned by Mr. BAILLY, appear now to be altogether unfounded. Indeed, the materials which Mr. BAILLY had collected *, were insufficient to enable him to form a just idea of the principles of the *Hindu* systems, which being mostly artificial, his method of investigation (from the *quantity* of the mean annual motions, &c. of the planets, though otherwise perfectly just) became altogether inapplicable; so much so, that the tables of *Trivalore*, which he had supposed were as old as the commencement of the present *Cali yug*, at least, were actually written and dated about the year 4383 of the *Cali yug*, or 516 years ago; and the mean annual motions of the planets given in that work, were *on the principles of the Hindu astronomy*, calculated to give the positions of the planets in the heavens at that time, as near at least, as the author could determine by observation. However, in order to do away these delusions, I shall, before I proceed to the investigation of the antiquity of the *Suryá Siddhánta*, explain, in as simple a manner as possible, the principles upon which the *Hindu* systems are founded, and the manner in which they are formed.

4. In the first place it is necessary to observe, that in most of the *Hindu* systems, certain points of time

* 1. Tables from *Trivalore*, dated in 1413 *Saka*. 2. Tables from *Chrisnaboram*. 3. Tables from *Narsipoor*, dated 1491 *Saka*. 4. Tables from *Siam*.

back, are fixed on as epochs, at which the planets are *assumed* to fall into a line of mean conjunction with the Sun, in the beginning of Aries. From the points of time, so assumed as epochs, the *Hindu* astronomer carries on his calculations, as if they had been settled so by actual observation; and determines the mean annual motions, which he must employ in his system, from thence, as will give the positions of the planets in his own time; as near as he is able to determine the same by observation.

5. In fixing on these epochs, the first *Hindu* astronomers took the precaution to throw them so far back into antiquity, that the difference between the assumed, and real places of the planets, whatever they might be at that time, would, when divided by the number of years expired from thence, in a manner vanish; or at least become too inconsiderable, to affect the mean annual motions of the planets, deduced from thence for several years. For, it is easy to perceive, that a point of time, may be fixed on so far back, that the mean annual motions of the planets to be from thence deduced, (upon a supposition of their being then in a line of mean conjunction in the beginning of Aries) shall give the real positions of the planets at present, agreeing with observations: and yet, the mean annual motions, so deduced, shall not differ from the real mean annual motions, above any assignable quantity, however small.

6. For, let an epoch of mean conjunction, be assumed at only the distance of 648000 years ago; without troubling ourselves at all with the real positions of the planets at that time, (which it would be impossible to know) now since the greatest possible difference that can ever happen, at any proposed time between the assumed, and real place of a planet,

cannot

cannot exceed six signs; if we divide this quantity, by the number of years supposed *now* expired, we shall have $\frac{6s}{648000} = 0s\ 0^{\circ}\ 0'\ 0'',1$, or one tenth of a second, for the greatest possible difference that could arise between the real mean annual motions of the planets as determined by *European* astronomers, and those which it would be necessary to employ, reckoning from the epoch thus assumed, as would give the positions of the planets at present, with the same degree of accuracy, as the most modern of *European* tables.

7. It must therefore appear obvious, that the further back an epoch of mean conjunction is assumed, the nearer should the annual motions to be thence adduced, agree with the real mean annual motions, determined from actual observations: And on the contrary, the nearer such epoch is assumed to our own time, the greater the difference will be; unless a point of time is found by computation, at which the planets were either in a line of mean conjunction, or so near, that the difference, when divided among the years expired, would not sensibly affect the mean annual motions to be thence derived: but in this case, it is necessary that the Sun and Moon, should be in a line of mean conjunction at the assumed epoch: or at least very nearly so, in proportion to the distance of time back; for otherwise, the computed times of conjunctions, oppositions, and eclipses, of these luminaries, would not agree with observation, for any considerable number of years.

8. Upon this principle, the epoch now commonly called the commencement of the *Cali yug*, appears to have been fixed on, by Varaha and some other *Hindu* astronomers since his time: for, though the planets were not then actually in a line of mean

 conjunction,

conjunction, yet, the differences between their respective positions, and that which was assumed, when divided among the years expired from that epoch, to the time of VARAHA, were considered as too small, to cause any considerable difference between the real mean annual motions, and those which it would be necessary to assume, so as to give the positions of the planets at that time, or even to cause any sensible error in their computed places deduced from thence for many years.

9. BUT, in order to make this still plainer, let us suppose, that a *Hindu* astronomer now starts up, possessed of instruments and other means, whereby he is able to determine the real positions of the planets at present; and that he is desirous of forming a complete new system, upon the principles of his predecessors; that is to say, assuming a mean conjunction of the planets, at the commencement of the *Cali yug*, what must be the mean annual motions, necessary to be given in such system, so as to bring out the longitudes of the planets agreeing with observations; or their positions in the heavens, as deduced from *European* tables.

10. LET the planets be supposed to have been in a line of mean conjunction, in the beginning of Aries, at the commencement of the *Cali yug*: that is to say, at the instant of midnight, between *Thursday* the 17th, and *Friday* the 18th *February* O. S. in the year of the *Julian* period 1612, on the meridian of *Lanka* *: or about 75° 50′ east of *Greenwich*: and let the time at which the mean longitudes of the planets, are to be determined as from observation,

* The *Hindus* suppose that *Lanka* lies in the same meridian with *Ugein* in the *Mharatta* dominions, the longitude of which has been determined from a great number of observations made by Dr. HUNTER to be 75° 50′ east of *Greenwich*.

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be the end of the year 4900 of the *Cali yug*, at the instant the Sun is supposed to be entering Aries, in the *Hindu* sphere according to mean motions.

11. Now from the commencement of the *Cali yug*, to the end of the year 4900, by the *Suryá Siddhánta*, is 1789767 days 54do. 24′ 20″; corresponding to the 12th *April* 1799, at 45′ 44″ past nine P. M. on the meridian of *Lanka*, or 51′ 40″ past four P. M. on the meridian of *Paris*. The mean longitude of the Sun, Moon, and planets, at that instant, according to M. De la Lande's tables of 1792, will be as follows:

	European Sphere.			
Sun - - - - - - -	0*s*.	20°	52′	28″,5
Moon - - - - - -	3	22	55	9,3
Mercury - - - - -	3	22	42	42
Venus - - - - - -	2	24	6	14
Mars - - - - - -	3	4	50	40
Jupiter - - - - - -	1	29	58	2,1
Saturn - - - - - -	3	24	16	56,1

12. The mean longitude of the Sun at that instant in the *Hindu* sphere is = 0*s*. 0° 0′ 0″, because he is supposed just entering Aries, according to mean motions: but his mean longitude is the *European* sphere, being then = 0*s*. 20° 52′ 28″,5, the difference between the spheres at that moment, becomes equal to that quantity; which must therefore be deducted from the mean longitudes above determined, and we have the relative positions of the Sun, Moon, and planets, in the *Hindu* sphere as follows:

Hindu

		Hindu Sphere.			
Sun's mean longitude,	- - -	0s.	0°	0′	0″
Moon's ditto,	- - - -	3	2	2	40,8
Mercury's ditto,	- - - -	3	1	50	13,5
Venus's ditto,	- - - -	2	3	13	45,5
Mars's ditto,	- - - -	2	13	58	11,5
Jupiter's ditto,	- - - -	1	9	5	33,6
Saturn's ditto,	- - - -	3	3	24	27,6

13. The mean longitude of the Sun, Moon, and planets, in the *Hindu* sphere, at the end of the year 4900 of the *Cali yug*, being thus determined, we must now find the quantities of the mean annual motions, that will just give these positions, reckoning from the commencement of the *Cali yug*, as an epoch of assumed mean conjunction.

14. The length of the *Hindu* year, according to the *Suryá Siddhánta*, is 365 days 15do. 31′ 31″ 24‴, in which time the Sun is supposed to make one complete revolution in his orbit. The mean motions of the Sun, Moon, and planets, in that space of time by De la Lande's tables, are as follows:

	European Sphere.					
Sun - - - - -	1r.	0s.	0°	0′	58″	40‴,26
Moon - - -	13	4	12	47	39	17,03
Mercury - -	4	1	24	46	35	36,9
Venus - - -	1	7	15	12	22	18,4
Mars - - -	0	6	11	25	17	49,3
Jupiter - - -	0	1	0	21	49	9,2
Saturn - - -	0	0	12	14	8	0,9

15. These motions being reduced to the *Hindu* sphere, by deducting the difference between the spheres at the end of one complete *Hindu* year = 58″ 40‴,26; we shall have their respective mean annual motions in the *Hindu* sphere, as follows:

Hindu

						Hindu Sphere.
Sun - - - -	1*r*.	0*s*.	0°	0′	0″	0‴
Moon - - - -	13	4	12	46	40	36,78
Mercury - -	4	1	24	45	36	56,6
Venus - - -	1	7	15	11	23	38,1
Mars - - -	0	6	11	24	19	9
Jupiter - - -	0	1	0	20	50	29
Saturn - - -	0	0	12	13	9	20,6

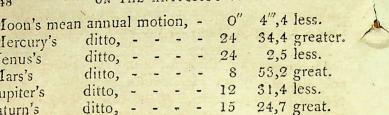
16. Multiplying these by 4900, the number of years expired from the assumed epoch, we obtain the Number of revolutions, &c. of each planet in that space of Time; from which rejecting the fractional parts of a revolution, and substituting in their stead, the sign, degree, &c. the planet is in, (at the end of the year 4900 above determined from *European* tables) and then dividing the whole by 4900, we get the mean annual motions required, as follows:

						Hindu Sphere.
Sun - - -	1*r*.	0*s*.	0°	0′	0″	0‴
Moon - - -	13	4	12	46	40	41,153
Mercury - -	4	1	24	45	12	22,206
Venus - - -	1	7	15	11	47	40,72
Mars - - -	0	6	11	24	10	15,814
Jupiter - -	0	1	0	21	3	0,411
Saturn - - -	0	0	12	12	53	55,93

From this example, a general idea may be formed of the principles of the *Hindu* astronomy, and the manner of determining the mean annual motions of the planets at different periods, from their positions in the heavens being then given by observation.

17. If we compare the mean annual motions thus determined, with those deduced from De la Lande's tables, we shall find, that they differ considerably: and that the latter make the

Moon's

Moon's mean annual motion,	-	0″	4‴,4	less.
Mercury's	ditto, - - - -	24	34,4	greater.
Venus's	ditto, - - - -	24	2,5	less.
Mars's	ditto, - - - -	8	53,2	great.
Jupiter's	ditto, - - - -	12	31,4	less.
Saturn's	ditto, - - - -	15	24,7	great.

18. From these circumstances, an *European* astronomer, unacquainted with the principles of the *Hindu* systems, on seeing such motions given in *Hindu* tables, would be apt to be deceived by appearances, and assign a degree of antiquity to the work it never possessed; thinking, that the author must have lived at that period, when according to his ideas, the quantities of the mean annual motions were the same as given in the book. This shews the absolute necessity of being acquainted with the principles of the *Hindu* systems of astronomy, before we can attempt to investigate their antiquity from the quantity of the mean annual motion of a planet. For the mean annual motion of Jupiter above deduced, is 1*s.* 0° 21′ 3″, which quantity, according to the principles of the *European* astronomy, would refer the age of a book in which it was found, to a period some thousands of years back; though, in reality it is only calculated to give the position of that planet at the end of the year 4900 of the *Cali yug*, agreeing with *European* tables; and so of the motions of the rest of the planets above deduced. For, let the mean annual motions above deduced, be multiplied by 4900, and we shall have

Sun,	revolutions	4900	—	0*s.*	0°	0′	0″
Moon,	——	65507	—	3	2	2	40,8
Mercury,	——	20345	—	3	1	50	13,5
Venus,	——	7965	—	2	3	13	45,5
Mars,	——	2605	—	2	13	58	11,5
Jupiter,	——	413	—	1	9	5	33,6
Saturn,	——	166	—	3	3	24	27,6

which

which are precisely the same as those computed from De la Lande's tables for the same instant (§ 12).

19. However, though the motions above assigned, give the mean Heliocentric longitudes of the planets perfectly correct at the end of the year 4900 of the *Cali yug*; yet, on account of the small differences between them, and the real mean annual motions, as well as on account of the inequalities observed by modern astronomers in the motions of some of the planets, they would every year after vary more and more from the truth, in proportion to the differences. This, in fact, is the case with all the *Hindu* systems of astronomy: and when the error becomes sensible, they either form a new system, or else introduce a correction to the old, which they term *beej*.

20. The *Hindu* systems of astronomy now in use, may be divided into three distinct classes. First, such as assume a conjunction of the sun, moon, and planets, with the nodes and apsides of their orbits, in the first point of Aries at beginning and end of the *Calpa* of Brohma *. Secondly, such as assume a conjunction at the beginning and end of the *Calpa* of Varaha, with a mean conjunction at the end of certain cycles or periods of years. Thirdly, such as assume

* The *Calpa* of Brohma contains 4320000000 *Hindu* years, and commenced 1972944000 years before the beginning of the present *Cali Yug*: it may have derived its name from Brohma Gupta, who may probably have been the author of it. The *Calpa* of Varaha consists of the same number of years, but commenced 17064000 years later, and derives its name from Varaha Mihir, author of the *Suryá Siddhánta*, *Jat Karnob*, &c. The *Calpa* is divided into lesser periods of years, called *Manwantaras* and *Yugs*: the intention of which seems to be, to assist the memory in calculating the years expired of the system: at least they answer no other purpose at present. In a valuable fragment in my possession, the durations of the *Calpas*, *Manwantaras*, and *Yugs*, of the ancient *Hindus*, are stated totally different from those now in use.

no

no conjunction at the beginning or end of either *Calpa*, or at any other period.—To the first class, belong the works of BROHMA GUPTA, the *Siddhanta, Serómoni* of BHASKER, &c. which make no conjunction of the planets at the commencement of the present *Cali yug*. To the second, belong the *Surya Siddhanta, Sóma Siddhanta, Vasishta-Siddhanta*, &c. and such as assume a mean conjunction at the beginning of the *Cali yug* only, as the *Jat Karnob* of VARAHA, the tables of *Trivalore*, &c. To the third, belong the *Brohma Siddhanta, Vishnu Siddhanta, Bhasvoti Drubo Rothono, Chondrika*, &c. These last are nearly on the principles of the *European* astronomy, the mean annual motions not being affected by any assumed epoch, and consequently make no conjunction of the planets either at the beginning of the present *Cali yug*, or at any other period.

21. THE revolutions of the planets, &c. in a *Calpa*, or 4320000000 years, according to BROHMA GUPTA and BHASKER ACHARYA, are as follows:

Sun, Moon, and Planets	Revolutions.	*Apsides.*	*Nodes.*
Sun, -	4320000000	480	
Moon -	57753300000	488105858	232311168
Mercury -	17936998984	332	511
Venus -	7022389492	653	893
Mars -	2296828522	292	267
Jupiter	364226455	855	63
Saturn -	146567298	41	584

22. In the *Surya Siddhanta*, the least cycle of years in which the sun, moon, and planets, are supposed to return to a line of mean conjunction in the beginning of Aries, is 1080000 years: or the fourth part

part of a *Maha yug* *, and the revolutions of each planet, given in that cycle, are as follows:

Sun,	revolutions	1080000
Moon,	——	14438334
Mercury,	——	4484265
Venus,	——	1755594
Mars,	——	574208
Jupiter	——	91055
Saturn,	——	36642

23. THESE revolutions were found by multiplying the mean annual motions by 1080000, the number of years assumed to the cycle: rejecting from the product all fractional parts of a revolution under six signs, and adding one revolution for those equal to or above that quantity. Thus let the mean annual motions which we have determined (§ 16) on the assumption of the planets having been in a line of mean conjunction at the beginning of the *Cali yug*, be multiplied by 1080000, and we shall have,

Sun,	revolutions	1080000	0 *s*.	0°	0′
Moon,	——	14438333	10	25	0
Mercury,	——	4484260	3	20	0
Venus,	——	1755589	8	25	0
Mars,	——	574208	6	20	0
Jupiter,	——	91052	6	0	0
Saturn,	——	36644	11	10	0

From which rejecting all fractional parts of a revolution under six signs, and encreasing the rest to unity, we have,

Sun,	revolutions	1080000
Moon,	——	14438334
Mercury,	——	4484260

* THE revolutions given in the *Surya Siddhanta* are for a *Maha yug*, but they must be always divisible by four, otherwise a mean conjunction could not take place at the beginning of the *Cali yug*. They are here reduced accordingly.

Venus

Venus,	revolutions	1755590
Mars,	——	574209
Jupiter,	——	91053
Saturn,	——	36645

24. COMPARING these, with the numbers in the same period, by the *Surya Siddhanta* (§ 22), it will appear, that the number of revolutions of Mercury, according to that work, is - 5 greater,

Of Venus, - -	4 greater,
Of Mars, - -	1 less,
Of Jupiter, - -	2 greater,
Of Saturn, - -	3 less.

These differences, the *Hindu* astronomers call *beej*; or the corrections to be applied to the mean places of the planets, computed from the *Surya Siddhanta* *.

25. HAVING thus given the revolutions of the sun, moon, and planets, in the cycle of 1080000 years in imitation of the *Surya Siddhanta*, I shall now shew their use in determining the mean longitudes of each at any time proposed.

EXAMPLE.

LET the time be the end of the year 4900 of the *Cali yug*, or the 12 *April*, 1799, at 51′ 40″ past four P. M. on the meridian of *Paris*; to find the mean longitudes of the sun, moon, and planets, in the *Hindu* sphere, at that instant. Say, as 1080000 is to the number of revolutions in that cycle, so is the number of years expired of the *Cali yug*, to the planets mean longitude at the end of that time: Thus,

* IN the *Siddhanta Rahosyo*, dated in 1513 *Saka*, the *beej* or corrections are as follow: Mercury 4; Venus 3; Jupiter 2; revolutions in 1080000 years substractive; and Saturn 3 additive; the *Groho Torongini* dated in 1530; *Siddhanta Munjeri* dated in 1531 *Saka*; *Bisuhito* and tables of CHRISNABORAM (all of which have been deduced from the *Surya Siddhanta*) adopt the *beej* to correct the mean longitudes of the planets, as computed from the motions deduced from the *Surya Siddhanta*.

Revo-

Revolutions.

Sun	$\frac{1080000 \times 4900}{1080000}$	=	4900	—	0s.	0°	0'	0"
Moon	$\frac{14438334 \times 4900}{1080000}$	=	65507	—	3	2	12	0
Mercury	$\frac{4484200 \times 4900}{1080000}$	=	20345	—	3	1	20	0
Venus	$\frac{1755500 \times 4900}{1080000}$	=	7965	—	2	3	40	0
Mars	$\frac{574200 \times 4900}{1080000}$	=	2605	—	2	14	42	0
Jupiter	$\frac{91053 \times 4900}{1080000}$	=	413	—	1	9	54	0
Saturn	$\frac{36645 \times 4900}{1080000}$	=	166	—	3	3	30	0

26. THE revolutions of the apsides and nodes in a *Calpa*, or 4320000000 years, according to the *Surya Siddhanta*, are as follow :

	Apsides.	*Nodes retrograde.*
Sun	387	
Moon	488203000	232238000
Mercury	368	488
Venus	535	903
Mars	204	214
Jupiter	900	174
Saturn	39	662

27. From what has been already said respecting the manner of determining the mean annual motions of the planets (§ 14, 15, & 16 and the number of revolutions of each, from thence (§ 23) in 1080000 years; no difficulty can occur in forming an idea of the mode by which those of the apsides and nodes were obtained.

28. The commencement of the *Calpa* of VARAHA, is fixed at the distance of 1955880000 years before the beginning of the present *Cali yug*, at the instant of midnight between *Saturday* and *Sunday* on the meridian of *Lanka*; at which instant, the sun moon

 and

and planets, with the apsides and nodes of their orbits, are assumed to have been in a line of conjunction in the beginning of Aries.

29. THE longitudes of the aphelia and nodes, at the end of the year 4900 of the *Cali yug*; or 12th *April* 1799, at 51′ 40″ past four P. M. on the meridian of *Paris*, by DE LA LANDE's tables will be as follow:

European Sphere.

	s.	°	′	″	Nodes---supplement. s.	°	′	″
Sun's apogee	3	9	28	18,3				
Moon's ditto	0	16	10	30,3	10	12	49	2,8
Mercury's aphel.	8	14	20	11	1	15	56	16
Venus's ditto	10	8	35	37	2	14	51	46
Mars's ditto	5	2	23	26	1	18	1	38
Jupiter's ditto	6	11	7	40	3	8	23	41
Saturn's ditto	8	29	3	23	3	21	56	17

30. THEIR longitudes in the *Hindu* sphere, are had by deducting 0s. 20° 52′ 28,5″ (§ 12) from those of the aphelia, and adding it to those of the nodes, as follows:

Hindu Sphere.

	s.	°	′	″	Nodes--supplement. s.	°	′	″
Sun's apogee	2	18	35	49,8				
Moon's ditto	11	25	18	1,8	11	3	41	31,3
Mercury's aphel.	7	23	27	42,5	2	6	48	44,5
Venus's ditto	9	17	43	8,5	3	5	44	14,5
Mars's ditto	4	11	30	57,5	2	8	54	6,5
Jupiter's ditto	5	20	15	11,5	3	29	16	9,5
Saturn's ditto	8	8	10	55,5	4	12	48	45,5

31. THE longitudes of the aphelia and nodes being given by assumption, at the commencement of the *Calpa* (§ 28); and their positions at the end of the year 4900 of the *Cali yug*, by *European* tables (§ 29 and 30); (which may be supposed to agree with observation) we obtain from thence, the following annual

nual motions; which when computed from the commencement of the *Calpa*, as an epoch of assumed conjunction, will give the longitudes of the aphelia and nodes, agreeing with *European* tables.

Annual motions of the apsides—*Hindu* sphere.

	S.	0	I	II	III	IV	V	VI	VII	VIII	
Sun	0	0	0	3	28	34	24	55	38	7	direct.
Moon	1	10	40	35	35	26	36	19	15	50	ditto.
Mercury			-	2	25	9	59	38	0	57	retro.
Venus			-	10	4	11	39	9	26	8	ditto.
Mars			-	8	19	50	19	37	3	21	direct.
Jupiter			-	1	56	23	23	4	5	50	retro.
Saturn			-	7	24	1	58	31	33	33	direct.

Annual motion of the nodes.

	S.	0	I	II	III	IV	V	VI	VII	VIII	
Moon's	0	19	21	31	5	15	30	51	45	46	retro.
Mercury's			1	41	58	19	20	7	2	2	ditto.
Venus's			1	29	40	19	2	29	29	57	ditto.
Mars's			1	26	40	17	41	53	0	52	ditto.
Jupiter			1	34	22	18	57	22	36	31	ditto.
Saturn			1	30	13	19	10	58	13	44	ditto.

32. THE motions of the aphelia of Mercury, Venus and Jupiter, are retrograde in the *Hindu* sphere; though direct in that of the *Europeans*: the reason of this, is owing to the difference between the motions of the two spheres, with respect to each other: for, if we conceive the first point of Aries in the *Hindu* sphere to coincide with the vernal equinox then at the expiration of $365^{ds.}$ $6^{h.}$ $12'$ $36''$ $33'''$ 36^{iv} (the length of the *Hindu* year according to the *Suryá Siddhanta)*, the Sun would again enter Aries in the *Hindu* sphere: but his distance at that very moment from the vernal equinox would be $= 58''$ $40'''$ 15^{iv} 36^{v}, the true quantity by which the *European* and *Hindu* spheres, recede from each other annually;

nually; and not 54″, as found in some *Hindu* books. Hence it follows, that if the motion of the aphelion of a planet, was exactly 58″ 40‴ 15^{iv} 36^{v}, in the *European* sphere, it would have none in that of the *Hindus;* but would be considered as fixed. And, if the motion was less, then it would be retrograde; as is the case with the aphelia of Mercury, Venus, and Jupiter.

33. From the motions above determined (§ 31), we obtain the following revolutions of the aphelia and nodes in a *Calpa*, requisite to give their positions by direct computation.

	Apsides.		Notes—retrograde.
Sun	10366	direct.	
Moon	488122956	ditto.	232308774
Mercury	7961	retro.	334893
Venus	33023	ditto.	293303
Mars	29030	direct.	289950
Jupiter	6698	retro.	319207
Saturn	23023	direct.	300592

These numbers differ widely from those given in the *Suryá Siddhánta* (§ 26), owing to the slow motions assigned to the apsides and nodes, in that work.

34. The revolutions of the apsides and nodes in a *Calpa*, being thus ascertained, the following examples will shew their applications and use.

Example. Let it be required to determine by computation, the longitudes of the Sun's apogee, Moon's apogee, and the aphelion of Jupiter, in the *Hindu* sphere, at the end of the 4900 of the *Cali yug*.

From the commencement of the *Calpa* of Varaha, to the beginning of the *Cali yug*, (§ 28) = 1955880000 years

Add - - - 4900

Total years expired of the *Calpa*, 1955884900

Then

Then say, as 4320000000 years to the number of revolutions in that cycle, so is the time expired to the longitude.

Thus, longitude of the

Sun's apogee, $= \frac{10366 \times 1955884900}{4320000000} =$
$4693^{\text{Rev.}} — 2^s\ 80^\circ\ 34'\ 22''$ &c.

Moon's apogee, $= \frac{488112295 6 \times 1955884900}{4320000000} =$
220998221 —11 25 18 49 &c.

Jupiter's aphel. $= \frac{6698519 \times 5884900}{4320000000} =$
3032 —6 9 45 18 &c.

but the motion of Jupiter's aphelion being retrograde we must deduct this longitude from twelve signs; and we shall have, 5*s.* 20° 14′ 41″ &c. the longitude required.

Again, let the longitude of the Moon's ascending node, at the end of the year 4900 of the *Cali yug* be required.

Longitude of the Moon's ascending node in antecedentia.

$= \frac{232308774 \times 1955884900}{4320000000} =$ (105178060) 11*s* 3° 40′ 33″ &c.
which deducted from twelve signs, leaves 0*s.* 26° 19′ 26″ &c. for the longitude of the node, according to the order of the signs.

LENGTH OF THE HINDU YEAR.

35. HITHERTO I have supposed the length of the *Hindu* year to be 365$^{\text{ds.}}$ 15$^{\text{do.}}$ 31′ 31″ 24‴, the same as in the *Sarya Siddhanta;* and all the preceding calculations respecting the motions of the planets, &c. are made on that supposition. It is, however, to be observed, that when a *Hindu* astronomer forms a new system conformably to the positions of the planets, &c. in his time, he must likewise deter-

mine the length of the year, to be given in that system.

36. IN order to ascertain the length of the *Hindu* year, two things are necessary to be first known. 1st. The instant of the commencement of the year. 2d. The time expired from the beginning of the cycle, to that instant. The first, is supposed to be found by observation by determining that instant of time, when the difference of longitude between the Sun and a known fixed Star, is equal to the longitude assigned to the Star in the *Hindu* sphere. The longitudes of the twenty-seven *Yoga* Stars, may be found in many *Hindu* books of astronomy; but all that have hitherto come into my hands, appear silent as to the manner in which the observation is conducted, or the particular Star by which it is made: *Chitra* or the virgin spike, (perhaps from its situation) is generally supposed to be the Star observed on such occasions; and its longitude, according to BROHMA GUPTA and some others, is $6^s\ 3^\circ\ 0'$ in the *Hindu* sphere.

37. ACCORDING to VARAHA, the year 3601 of the *Cali yug*, began precisely at the instant of the vernal equinox; that is, the Sun had then entered Aries according to the true motions: consequently, the *Hindu* and *European* spheres had then (A. D. 499) coincided.

The longitude of Spica, in A. D. 1750, was	$=6^s$	20°	$21'$	$18''$
Deduct precession for 1251 years, at $50''$ 1 per a.	=	17	24	35
Longitude of Spica, in A. D. 499,	=6	2	56	43
BROHMA GUPTA makes it -	=6	3	0	0
Difference, about - -			3	17

However, from the most accurate comparisons I have been able to make, respecting the length of the year, as given in different books, whose ages are known, either

either from dates or computations; it would appear, that the longitude assigned to *Chitra*, by BROHMA GUPTA, &c. is too great by upwards of fifty minutes.

38. THE Sun's true longitude, when he enters Aries, according to mean motions, is stated by *Hindu* tables at about 0*s*. 2° 7′ 24″; now if we suppose the longitude of *Chitra*, to be 6 *s*. 2° 7′ 24″, (to avoid trouble in calculation) the difference of longitude between the Sun and Star, when the former enters Aries according to mean motions, will be exactly six signs.

39. The distançe, or difference of longitude between the Sun and Star, (at the commencement of the year according to mean motions), being thus supposed six signs; we can easily ascertain the instant they are in that position, and from thence the length of the year, as follows: Sun's mean longitude in the *European* sphere on the 12th *April*, 1799, at 45′ 44″ past 9 P. M. on the meridian of

Lanka (§ 11). -	=0*s*.	20°	52′	28″, 5
Equation of his center, -	+ 0	1	52	45
Sun's true longitude, -	0	22	45	13,5
Longitude of Spica same time,	=6	21	2	32,5
Difference of longitudes between ☉ & * - -	5	28	17	19
Which deduct from -	6	0	0	0
Remain - -	0	1	42	41
Which reduced to time make,	1 day	44 do	46′	44″
Now the time expired from the commencement of the *Cali yug*, to the above instant, is (§ 11),	1789767 days	54 do	24′	20″
Deduct - -	1	44	46	44
Remain - -	1789766	9	37	36

or the instant at which the Sun and Star would be axactly six signs distant from each other, being the commencement of the year, according to mean motions; and which being divided by 4900, the num-

number of years then expired of the *Cali yug*, we shall have $\frac{1789766 \quad 9 \quad 37 \quad 36}{4900}$ =365 days 15 do. 30′ 14″ 25‴, the length of the *Hindu* year in A. D. 1799, upon the supposition that *Chitra* is exactly six signs distant from the Sun the moment he enters Aries according mean motions.

40. The Sun is found to revolve from any fixed Star to the same again in 365 days 6h 9′ 11″ 36‴, which is the length of the sidereal year, as determined, by *European* astronomers. Hence, after the expiration of one compleat sidereal year, from the time above determined, the Sun would again return to the same position with respect to Spica: it may therefore be asked, why is the *Hindu* year longer than the sidereal year of the *European* astronomers? To understand the reason of this, it must be observed that at the time above determined, at which the Sun and Star would be exactly six signs distant from each other the number of days expired of the *Cali yug*, would be precisely - =1789766 9 37 36
But 4900 sidereal years, make only 1789756 16 58 0
Difference, - - 9 52 39 16
Hence it follows, that as the number of days expired of the *Cali yug* at the time, exceeds the number in 4900 sidereal years, by nearly ten days; that difference, when divided amongst the years expired, muft evidently cause an excess in the length of the *Hindu* year, above the sidereal.

41. Hence also, the length of the *Hindu* year, may be commodiously obtained, at any proposed period, by the following formula:

Let d = 9 days 52 do 39′ 16″
s = 365 15 22 59 = the sidereal year,
h = length of the *Hindu* year,
n = number of years expired of the *Cali yug*,

Then

Then $s + \frac{d}{n} = h$

And $\frac{d}{h-s} = n$.

42. FROM the formula $s + \frac{d}{n} = h$, the following table has been computed, shewing the length of the *Hindu* year, at different periods by inspection.

1st *Bysack*	3601	*A. D.* 499	365^dys^	15^do.^	32′	51″	39‴
	3701	599	——	15	32	35	38
	3801	699	——	15	32	20	28
	3901	799	——	15	32	6	4
	4001	899	——	15	31	52	24
	4101	999	——	15	31	39	23
	4201	1099	——	15	31	26	59
	4301	1199	——	15	31	15	11
	4401	1299	——	15	31	3	54
	4501	1399	——	15	30	53	7
	4601	1499	——	15	30	42	49
	4701	1599	——	15	30	32	57
	4801	1699	——	15	30	23	29
	4901	1799	——	15	30	14	25

THIS much may serve to explain the principles on which the length of the *Hindu* year depends. There is however another method for determining the length of the year, from the precession of the equinoxes, which I shall now explain.

43. I HAVE already observed (§ 37), that according to VARAHA, the year 3601 of the *Cali yug*, began at the instant of the vernal equinox (in A. D. 499), The same astronomer fixed also the rate of precession at 54″ annually. Hence by knowing the time of coincidence of the *Hindu* and *European* spheres, and the rate of precession, we can easily determine from thence, the instant at which the *Hindu*

year

year ought to commence. For, then the distance of the first point of Aries in the *Hindu* sphere, from the vernal equinoxial point, must be always equal to the whole precession. For example, at the end of the year 4900 of the *Cali yug*, the precession at 54″ annually, will amount to 19° 30′; which on the principles above stated should the Sun's true longitude in the *European* sphere, at the instant of the commencement of the *Hindu* year according to true motions.

The Sun's true longitude on the 12th *April* 1799, at 51′ 40″ past 4 P. M. on the meridian of *Paris* in the *European* sphere (§ 39)	= 0*s*. 22°	45′	13,5″	
Deduct the precession -	0	19	30	0
Remain - - -		3	15	13,5
Which reduced to time according to true motions make -	3^ds^	19^do.^	21′	02″
From the time then expired of the *Cali yug* (§ 11) -	= 1789767	54	24	20
Deduct - -	3	19	21	02
Remain commencement of the *Hindu* year -	1789764	35	3	18
Add *Hindu* equation of the Sun's center reduced to time =	2	10	12	40
Sun enters Aries according to mean motions at -	1789766	45	15	58

which being divided by 4900, the number of years expired of the cycle, we shall have $\frac{1789766^{days}\ 45^{do.}\ 15'\ 58''}{4900}$ = 365^s^ 15^do.^ 30′ 40″ 36‴, the length of the *Hindu* year in A. D. 1799, from the precession of the equinoxes as settled by VARAHA. In this operation the length of the *Hindu* year, comes out somewhat greater than that deduced from the position of *Chitra*. Both methods, however, agree in giving the same length to the year, between 7 and 800 years ago; about which time, according to the testimony of some *Hindu* books, as well as from computation, VARAHA must have lived and made his observations.

44. THE

44. THE length of the year being determined either from the position of *Chitra*, or the precession of the equinoxes as above explained (§ 39, 43), the next thing a *Hindu* astronomer has to do (if he means to form a compleat system in imitation of the *Surya Siddhanta*), is to ascertain the number of days to be assigned to the cycle of 1080000 years. This is done by multiplying the length of the year by that number. For example let the length of the year A. D. 1799 deduced from the position of *Chitra* = 365^{dys} 15$^{do.}$ 30′ 14″ 25‴, be multiplied by 1080000, and we shall have 394479072, for the nearest number of days in that cycle.

45. In the *Surya Siddhanta* the *Calpa* is made to commence with *Sunday* as the first day of the week, and the present *Cali yug*, is made to begin with *Friday*. Therefore, in reckoning from the commencement of the *Calpa*, the number of days to be assigned to the above cycle, must be so regulated that the first day of the cycle which we now are in, may fall on *Friday*. The number of cycles expired at the commencement of the *Cali yug*, was 1811; which divided by 7, leaves a remainder of 5: hence, every cycle must contain a compleat number of weeks and one day over, to make the present begin with *Friday*.

46. THE number of revolutions of the Moon in the cycle of 1080000 years, and the number of mean solar days in the same period should be so adjusted with each other, as to give the relative positions of the Sun and Moon agreeing with observation. This is effected by encreasing or diminishing the number of days, or the Moon's revolutions, or both; until the relative positions of the luminaries are obtained sufficiently correct. The adjustment in the days, must be made

by

by compleat weeks, to preserve the order of the days of the week from the commencement of the *Calpa*.

47. THE revolutions of the Moon in the cycle of 1080000 years corresponding to the number of days above deduced = 14438321; but this number does not give the relative positions of the Sun and Moon in A. D. 1799, nearer than 3′ 20″,5 of the truth, which might be deemed sufficiently accurate by a *Hindu* astronomer; but to render this still more correct, I find by computation that two revolutions must be added; and that the number of days in the cycle, must be encreased by sixty-three, or nine weeks; so that the adjusted number of revolutions will then be 14438323, and the days corresponding = 394479135: from which, we obtain the relative positions of the Sun and Moon with respect to each other, within 6″ of what the *European* tables make them; a degree of accuracy more than necessary in a *Hindu* system.

48. THE number of mean solar days in the cycle of 1080000 years, being thus finally adjusted, we get the length of the year = $\frac{394479135}{1080000}$ = $365^{ds.}$ $15^{do.}$ 30′ 27″; and the instant at which the Sun enters Aries in the *Hindu* sphere in A. D. 1799, according to mean motions = $\frac{394479135 \times 4900}{1080000}$ = $1789766^{ds.}$ $26^{do.}$ 45′ from the commencement of the *Cali yug*. The corrections introduced above (§ 47), make the year come out a little longer, and the time of its commencement somewhat later than we deduced from the position of *Chitra* (§ 39); but this is of no consequence whatever, the principal object in the *Hindu* astronomy being to obtain the relative positions and motions of the Sun and Moon sufficiently correct, for calculating the times of their conjunctions, oppositions, and eclipses.

49. THE

49. THE mean longitudes of the planets, being determined as by observation at the instant of the commencement of the year, and their mean annual motions, &c. thence deduced, as already explained (§ 12, 13, 14, 15, 16,) we obtain from thence the following revolutions in the cycle of 1080000 years.

Sun - - - - - - - - -	1080000
Moon - - - - - - - -	14438323
Mercury - - - - - - -	4484258
Venus - - - - - - - -	1755589
Mars - - - - - - - - -	574209
Jupiter - - - - - - - -	91053
Saturn - - - - - - - - -	36646
Days - - - - - - - -	394479135

And, the revolutions of the apsides and nodes in a *Calpa*, or 4320000000 years, will be as follows:—

	Apsides.	Nodes—retrograde.
Sun - -	11985 direct	
Moon -	488114797 ditto	232308827
Mercury -	8014 retro.	340671
Venus - -	33076 ditto	299081
Mars - -	28977 direct	286659
Jupiter -	6751 retro.	315916
Saturn - -	24642 direct	297301

50. THE revolutions of the Sun in the cycle = 1080000 subtracted from the revolutions of the Moon in the same period = 14438323 leave the number of mean lunations= 13358323, which being multiplied by 30, gives the number of tithis or lunar days = 400749690: and 400749690—394479135 = 6270555, the intercalary lunar days in the cycle. The number of sidereal days, or apparent revolutions of the fixed Sars = 394479135 + 1080000 = 395559135. The Moon's periodical revolution, or the time in which she goes from the first

first point of Aries to the same again $= \frac{394479135}{14438323} =$ 27$^{ds.}$ 19do 18′ 1″ 17‴ &c. and her synodical revolution or lunation $= \frac{394479135}{13358323}$ = 29$^{ds.}$ 31$^{do.}$ 50′ 7″ 02‴ &c. or according to the *European* expression 29$^{ds.}$ 12$^{h.}$ 44′ 2″ 49‴ &c. which does not differ the ninetieth part of a second from the length of a lunation by DE LA LANDE's tables. The periodical revolutions of the planets may be had exactly in the same manner, by dividing the number of days in the cycle by the revolutions of each.

51. THE system being now compleated, the mean longitudes of the Sun, Moon, and planets, are obtained from the revolutions above given (§ 49) in the manner already explained (§ 25); and their true longitudes, &c. are determined from thence by means of equations.

52. THE equations of the orbits of the planets to be met with in *Hindu* books, differ considerably from those of *Europeans*, arising partly from the manner in which they are computed, partly from the inaccuracy of *Hindu* observation, and partly from their antiquity. For most of the *Hindu* astronomers for some ages back, appear to rest satisfied with merely copying the equations given in the books of those who preceded them. The equations now in general use appear to have been given by VARA'HA several centuries ago, and it is probable he copied them from the works of some still earlier astronomer.

53. VARA'HA has stated the obliquity of the ecliptic at twenty-four degrees, and the *Hindu* astronomers since his time, appear to adopt that quantity. But VARA'HA was not the first who gave the obliquity of the ecliptic at twenty-four degrees; for, it would appear that BROHMA GUPTA, between five and six centuries before him, states it precisely the same. We are not, however, to conclude from hence, that the

the *Hindu* astronomer who first observed the obliquity of the ecliptic, and settled it at twenty-four degrees, must have lived so far back as the point of time when it was really so: for it is well known, that independent of errors in observations for want of proper instruments, the *Hindu* astronomers make it a rule in all cases, where extraordinary accuracy is not required, to reject fractional quantities, and take the nearest whole number; so that if the first *Hindu* astronomers found the obliquity to exceed 23° 30'. they would state it at 24°, as being sufficiently near for their purpose.

54. THEREFORE, in investigating the antiquity of any *Hindu* astronomical work, the *quantities* of the equations of the orbits of the planets, and that of the obliquity of the ecliptic must be rejected, as not only too incorrect for the purpose, but altogether fallacious; for, being as I have above stated (§ 52—53) copied from the works of the earlier astronomers, they cannot in the smallest degree add to the antiquity of the works into which they are so transcribed, except in delusive appearance only.

55. THE aphelia and nodes of the planets being invisible points in the heavens, their positions and motions for want of proper instruments, have been but ill determined by the *Hindu* astronomers; and therefore, are to be rejected also: unless, where they are found to agree with the general result, deduced from the motions and positions of the Sun, Moon, and planets.

56. HAVING thus given a full and comprehensive view of the pinciples of the *Hindu* systems, with their formation, and pointed out all those delusive appearances which are apt to mislead; I shall now proceed to the investigation of the antiquity of the *Surya Siddhanta*

57. THE

57. THE most correct and certain mode of investigating the antiquity of *Hindu* astronomical works, is by comparing the positions and motions of the planets computed from thence, with those deduced from accurate *European* tables. For, it must be obvious that every astronomer, let the principle of his system be what it will, whether real or artificial, must endeavour to give the true positions of the planets in his own time; or at least as near as he can, or the nature of his system will permit: otherwise his labour would be totally useless. Therefore, having the positions and motions of the Sun, Moon, and planets, at any proposed instant of time, given by computation from any original *Hindu* system; and having also their positions and motions deduced from correct *European* tables for the same instant; we can from thence, determine the point or points of time back, when their respective positions were precisely the same by both.

58. ACCORDING to the *Surya Siddhanta*, the motion of the Moon's apogee in 100 years of $365^{ds.}\ 15^{do.}\ 31'\ 31''\ 24'''$ each $= \frac{488203 \times 100}{4320000} =$ 11 rev. $3^s\ 18^\circ\ 21'\ 30''$

By DE LA LANDE's tables for the same space of time, in the *Hindu* sphere, = 11 rev. 3 17 39 19,1

Difference, the former greater by 42 10,9

Now, supposing the author of the *Surya Siddhanta*, to have accurately determined the position of the Moon's apogee, when he wrote that work; it must follow, that at the expiration of one hundred *Hindu* years from that time, the computed place of the apogee, would exceed the true by 42′ 10,″9; and at the end of two centuries, it would be double that quantity: so that the difference between the true, and computed places, has been ever since encreasing in that proportion. Therefore, in order to ascertain the age of the *Surya Siddhanta*, we must find what the

the difference amounts to at present; which being divided by the above difference, gives the time expired, since the *Surya Siddhanta* is supposed to have been written.

Thus, the longitude of the Moon's apogee at the end of the year 4900 of the *Cali yug*—

By the *Surya Siddhanta* = $\frac{1955884900 \times 488203}{4320000}$ =

221034461 rev. 11ˢ 29° 33′ 30″

By DE LA LANDE's tables, *Hindu* sphere (§ 30)	11 25 18 1,8
Difference in A. D. 1799	4 15 28,2

which being multiplied by 100, and divided by the difference in motion per century, we have $\frac{4° \; 15' \; 28,2 \times 100}{42 \;\; 10,9}$ = 605 years, for the age of the *Surya Siddhanta* from this operation.

59. THE motion of the Moon's ascending node for a century :—

By the *Surya Siddhanta* = $\frac{232238 \times 100}{4320000}$

= 5 revolutions 4ˢ 15° 19′ 0″

By DE LA LANDE's tables, *Hindu* sphere,	= 4 15 51 48,7
Difference, the former less by	32 48,7

Longitude of the Moon's ascending node at the end of the year 4900 of the *Cali yug*, in antecedentia :—

By the *Surya Siddhanta* = $\frac{1955884900 \times 232238}{4320000}$

= 105146017 rev. 11ˢ 0° 13′ 0″

By DE LA LANDE's tables, *Hindu* sphere (§ 30)	= 11 3 41 31,3
Difference, the former less by	3 10 31,3

Hence, $\frac{3° \; 10' \; 31'',3 \times 100}{32 \;\; 48,7}$ = 580 years, for the age of the *Surya Siddhanta* from this operation: differing but twenty-five years from the former.

60. THE motion of the Sun's apogee in a century of *Hindu* years:

By the *Surya Siddhanta* $= \frac{387 \times 100}{4320000000} =$ 0ˢ 0° 0′ 11″,6

By DE LA LANDE's tables, *Hindu* sphere, = 0 0 5 47 ,6

Difference, the former too slow by 5 36 ,0

Longitude of the Sun's apogee at the end of the year 4900 of the *Cali yug*:—

By the *Surya Siddhanta* $= \frac{1955884000 \times 387}{4320000000}$

= 175 rev. 2ˢ 17° 17′ 16″,4

By DE LA LANDE's tables, *Hindu* sphere (§ 30) = 2 18 35 49 ,8

Difference, the former less by 1 18 33,4

Hence, $\frac{1^\circ\ 18'\ 33'',4 \times 100}{5\ 36} = 1105$ years, for the age of the *Surya Siddhanta* from this operation.

61. THE position of Mercury has been ill determined by the author of the *Surya Siddhanta*, probably from that planet being too near the Sun; for it will require about 1454 years yet to come, before the *European* tables and the *Surya Siddhanta* agree in giving it the same position; unless there are some inequalities in its motion not yet observed by *European* astronomers.

The motion of this planet for a century.—

By the *Surya Siddhanta*, $= \frac{4484265 \times 100}{1080000}$

= 415 revolutions 2ˢ 15° 30′ 0″

By DE LA LANDE's tables, *Hindu* sphere 2 16 1 34,3

Difference, the former too slow by 31 34,3

Mercury's mean longitude at the end of the year 4900 *Cali yug*:—

By the *Surya Siddhanta* $= \frac{4484265 \times 4900}{1080000}$

= 20345 revol. 3ˢ 9° 30′ 0″

By

By DE LA LANDE's tables, *Hindu*
sphere, (§ 12) - - 3s. 1° 50' 13,5"
Difference, the former more advanced
by - - - - - - 7 39 46,5
which is contrary to what it ought to be, had the observation been correct.

62. THE mean motions of Venus for a century of *Hindu* years:—
By the *Surya Siddhanta* = $\frac{1755594 \times 100}{1080000}$
= 162 revol. - - - 6s. 19° 48' 0"
By DE LA LANDE's tables, *Hindu*
sphere, - - - - 6 18 59 23,5
Difference, the former quicker by 48 36,5
Mean heliocentrick longitude at the end of the year 4900 of the *Cali yug:*
By the *Surya Siddhanta* = $\frac{1755594 \times 4900}{1080000}$
= 7965 revol. - - - 2s. 10° 12' 0"
By DE LA LANDE's tables, *Hindu*
sphere, (§ 12) - - - 2 3 13 45,5
Difference, the former more advanced by 6 58 14,5
Hence, $\frac{6^\circ\ 58'\ 14'',5 \times 100}{48\ 36,5}$ = 860 years, for the age of the *Surya Siddhanta* from this operation.

63. THE mean motions of Mars for a century of *Hindu* years:—
By the *Surya Siddhanta* = $\frac{574208 \times 100}{1080000}$
= 53 revol. - - 2s. 0° 16' 0"
By DE LA LANDE's tables, *Hindu*
sphere, - - - 2 0 31 55
Difference, the former slow by 15 55
Mean longitude at the end of the year 4900 of the *Cali yug:*
By the *Surya Siddhanta* = $\frac{574208 \times 4900}{108000}$
= 2605 revol. - 2s. 13° 4' 0"

 By

By DE LA LANDE's tables, *Hindu* sphere (§ 12) - - $2^s\ 13_0\ 58'\ 11,5''$
Difference, the former less advanced by 54 11,5
Hence, $\frac{54'\ 11'',5 \times 100}{15\ 55} = 340$ years, for the age of the *Surya Siddhanta* from this operation.

64. The mean motions of the Sun, Moon, Jupiter, and Saturn, are found by modern astronomers to be subject to inequalities, on account of the mutual attractions of the planets to each other; therefore, before we proceed farther, it will be proper to state here the formulæ which have been given by M. DE LA GRANGE, DE LA PLACE, &c. for computing these inequalities.

FOR THE SUN.

Let n, = the number of years before A. D. 1750, then $n.^2 \times .00018408''$ = the inequality according to the quantities given in DE LA LANDE's tables, and is additive.

FOR THE MOON.

Let n, = the number of years before A. D. 1700, then $n.^2 \times .00111355'' - n.^3 \times .000000044''$ express the inequality which is additive in this case.

FOR JUPITER.

Let n, = the number of years before A. D. 1750; J, = Jupiter's mean longitude; S, = Saturn's mean longitude; then, $+ (20'\ 49'',5 - n.\ 0'',042733)$ $.Sin\ (5\ S - .2\ J. + 5°\ 34'\ 8'' - n.\ 58'',88)$ express the inequality.

FOR SATURN.

Let n, J, S, be as in the last; then, $- (48'\ 44'' - n.\ 0,''1)\ .\ Sin(5\ S. - 2\ J. + 5°\ 34'\ 8'' - n.\ 58'',88)$ will express the inequality.

I

65. From

65. FROM the position and motion of the Moon, we obtain 759 years, for the age of the *Surya Siddhanta*: as in the following operation:

4900 — 759 = 4141 *Cali yug.*

Moon's mean longitude at the end of the year 4141 of the *Cali yug*:

	s.	°	′	″	‴
By the *Surya Siddhanta* $= \frac{14438334 \times 4141}{1080000}$ = 55360 revs. - -	3s.	23°	41′	52″	48‴
By DE LA LANDE's tables at the end of the year 4900 of the *Cali yug*, *Hindu* sphere, (§ 12) =	3s.	2°	2′	40″	48‴
Deduct motion for 759 *Hindu* years and sphere - =	11	8	27	45	16
Mean longitude at the end of 4141 of the *Cali yug* =	3	23	34	55	32
Add inequality in Moon's motion, per formula for 660 years =			7	52	24,7
Correct mean longitude =	3	23	42	47	56,7
Deduct inequality in Sun's motion per formula, for 710 yrs =				54	38,7
Moon's correct mean longitude, *Hindu* sphere - - =	3	23	41	53	17,9
agreeing with the *Surya Siddhanta* within half a second, or					29,9

Or the operation may be as follows, in the *European* sphere.

Moon's mean longitude at the end of the year 4900 of the *Cali yug*:—

	s.	°	′	″	‴
By DE LA LANDE's tables, *Eur.* sphere, (§ 11) - - =	3s.	22°	55′	9″	18‴
Deduct motion for 759 *Hindu* years, but *European* sphere =	11	20	49	56	25,77
Mean longitude at the end of the year 4141 of the *Cali yug*	4	2	5	12	52,2
Add inequality per formula for 660 years - =			7	52	24,7

Correct

Correct mean longitude, end of 4141 *Cali yug*, in *Eur.* sphere 4ˢ 2° 13′ 5″ 16,9‴

Now, in order to reduce this to the *Hindu* sphere, we must find what the Sun's mean longitude was at that time, as follows:

Sun's mean longitude at the end of the year 4900 *Cali yug*:—

By DE LA LANDE's tables, *Eur.* sphere, (§ 11) -	=	0ˢ·	20°	52′	28″	30‴
Deduct motion for 759 *Hindu* years - -	=	0	12	22	11	9,7
Sun's mean longitude at the end of the year 4141 -	=	0	8	30	17	20,2
Add inequality per formula for 710 years -	=				54	38,8
Correct mean longitude, *European* sphere -	=	0	8	31	11	59,0
But the Sun's mean longitude in the *Hindu* sphere at that instant was -	=	0	0	0	0	0
Consequently the difference of the spheres -	=	0	8	31	11	59,0
Now, from the Moon's correct mean longitude -	=	4	2	13	5	16,9
Subtract diff. of the spheres	=	0	8	31	11	59,0
Remain Moon's mean longitude *Hindu* sphere -	=	3	23	41	53	17,9

the same as before.

66. FROM Jupiter's position and motions, we obtain 875 years, for the age of the *Surya Siddhánta*: 4900—875=4025 of the *Cali yug*.

Jupiter's mean longitude at the end of the year 4025 of *the Cali yug*:—

By the *Surya Siddhanta* = $\frac{91055 \times 4025}{1080000}$

= 339 rev. - - 4ˢ· 5° 27′ 30″ 00‴

Jupiter's

Jupiter's mean longitude at the end of the year 4900 of the *Cali yug* :—

By De la Lande's tables, *Hindu* sphere, (§ 12) = $1^s\ 9^\circ\ 5'\ 33''\ 36'''$

		s	°	′	″	‴
Deduct motion for 875 *Hindu* years and sphere	=	9	3	56	12	37
Mean longitude end of the year 4025 *Cali yug*,	=	4	5	9	20	59
Add inequality in Jupiter's motion per De la Lande's tables	=			19	22	36
Sum,	=	4	5	28	43	35
Deduct inequality in the Sun's motion, for 826 years	=			1	14	0
Jupiter's correct mean longitude, *Hindu* sphere	=	4	5	27	29	35

being the same with the *Surya Siddhanta* within less than half a second.

67. From Saturn we get 805 years.

4900—805 = 4095 of the *Cali yug*.

Saturn's mean longitude at the end of the year 4095 of the *Cali yug* :—

By the *Surya Siddhanta* $= \frac{36642 + 4095}{1080000} =$ 138 rev. = $11^s\ 6^\circ\ 19'\ 48''\ 00'''$

Saturn's mean longitude at the end of the year 4900 of the *Cali yug* :—

		s	°	′	″	‴
By De ja Lande's tables, *Hindu* sphere (§ 12)	=	3	3	24	27	36
Deduct motion for 805 *Hindu* years and sphere	=	3	26	30	21	23
Remain Saturn's mean longitude	=	11	6	54	6	13
Deduct inequality in motion per De La Lande's tables	=			33	9	0
Remain	=	11	6	20	57	13
Deduct inequality in Sun's motion per formula	=			1	1	57
Saturn's correct mean longitude, end of 4095 of the *Cali yug*	=	11	6	19	55	16

agreeing

agreeing with the *Surya Siddhánta* within seven seconds.

68. FROM the aphelion of Mars we get 641 years for the age of the *Surya Siddhanta* :

Thus, the longitude of the aphelion of Mars at the end of the year 4900 of the *Cali yug*:

By the *Surya Siddhánta* $= \frac{1955884900+204}{432000000}$		92 rev.				
		4^s	$10°$	$2'$	$35''$	$54'''$
By DE LA LANDE's tables *Hindu* sphere (§12)		4	11	30	57	30
Difference, the former less advanced by			1	28	21	6
Mean motion per century of *Hindu* years.						
By the *Surya Siddhanta*	=	0	0	0	6	7
By DE LA LANDE's tables, *Hindu* sphere	=	0	0	13	53	3
Difference, the former slow by		0	0	13	46	56

Hence, $\frac{1° \, 28' \, 21'' \, 36'''+100}{13 \;\; 46 \;\; 56} = 641$ years.

69. FROM the length of the year $=365^{Ds.}\ 15^{do.}\ 31'\ 31''\ 24'''$, we get 736 years, for the age of the *Surya Siddhánta:*

Thus, in the formula $\frac{d}{h-s}=n$, (§ 41) we have $d=9^{Ds.}\ 52^{do.}\ 39'\ 16''$; $h=365^{Ds.}\ 15^{do}\ 31'\ 32''\ 24'''$; and $s=365^{Ds.}\ 15^{do.}\ 22'\ 59''$. Hence $\frac{d}{h-s}=n=\frac{9\ 52\ 39\ 16}{8\ 32\ 24}=$ 4164 of the *Cali yug*, when the year was of the given length. Therefore $4900-4164=736$ years, the age of the *Surya Siddhánta*.

70. LET the results of the foregoing operations be now collected together, in order to obtain a mean of the whole: and we shall have

From

From the Moon's apogee	(§ 58)	-	605 years.
——— node	(§ 59)	-	580
Sun's apogee	(§ 60)	- -	1105
Venus	(§ 62)	-	860
Mars	(§ 63)	- -	340
Moon	(§ 65)	-	759
Jupiter	(§ 66)	- -	875
Saturn	(§ 67)	-	805
Mars's aphel.	(§ 68)	- -	641
Length of the year	(§ 69)	-	736
		Sum =	7306

which being divided by 10, the number of results, we get 730,6—or 731 years nearly for the age of the *Surya Siddhánta*: which differs but about five years from the age deduced from the length of the year only.

71. BUT independent of all calculations we know from *Hindu* books, the age in which the *Surya Siddhánta* was written; and by whom. In the commentary on the *Bhasvoti*, it is declared, that VARA'HA was the author of the *Surya Siddhánta*. The *Bhasvoti* was written in the year 1021 of *Saka*, by one SOTANUND, who, according to *Hindu* accounts, was a pupil of VARA'HA, and under whose directions he himself acknowledges he wrote that work. Consequently, VARA'HA must have been then alive, or else a very short time before it: which agrees as near as possibly can be, with the age above deduced; for, the *Bhasvoti* in A. D. 1799, will be exactly 700 years old.

72. THAT VARA'HA, was the real author of the *Surya Siddhánta*, is still further confirmed by one of his works in my possession, entitled *Jatok Arnob*; the mean age of which comes out by computation 739 years. In this work, as in the *Surya Siddhánta*, the

the Sun, Moon, and planets, are assumed to have been in a line of mean conjunction, in the first point of Aries at the commencement of the *Cali yug*, on the meridian of *Lanca*, and the mean annual motions, by both, are as follows:

	Jatok Arnob.	*Surya Siddhánta.*
Sun -	0^s 0° $0'$ $0''$ $0'''$	0^s 0° $0'$ $0''$ $0'''$
Moon	4 12 46 40 47 $\frac{672052}{3603279}$	4 12 46 40 48
Mercury	1 24 45 18 1 $\frac{3[illegible]4421}{6987521}$	1 24 45 18 0
Venus	7 15 11 52 48 $\frac{6734016}{264069563}$	7 15 11 52 48
Mars -	6 11 24 9 36 $\frac{15948496}{75922029}$	6 11 24 9 36
Jupiter	1 0 21 6 0 $\frac{13501181850}{34[illegible]06008237}$	1 0 21 6 0
Saturn	0 12 12 50 20 $\frac{16[illegible]50[illegible]340}{295005203}$	0 12 12 50 24

Annual motion of the Moon's apogee.

By the *Jatok Arnob* -	1^s 10° $41'$ $0''$ $54'''$ $\frac{5[illegible]3[illegible]3509}{7779[illegible]647}$
By the *Surya Siddhánta*	1 10 41 0 54

Annual motion of the Moon's node.

By the *Jatok Arnob* -	0 19 21 11 24 $\frac{2533106}{539050091}$
By the *Surya Siddhánta*	0 19 21 11 24

Length of the year.

	Ds.	do.	I	II	III	IV
By the *Jatok Arnob* -	365	15	31	31	24	25 $\frac{349}{2407}$
By the *Surya Siddhánta*	365	15	31	31	24	

73. Now comparing the quantities of the motions, &c. deduced from these works with each other, it will evidently appear, that one person must have been the author of both: for, though the quantities are not exactly the same, yet the differences are too small to admit of a supposition of their being the works of two different persons. In fact, the small difference between the *Jatok Arnob* and *Surya Siddhánta*, appears to be owing to the system being completed in the one, and not in the other For, if we

4 multiply

multiply the mean motions, &c. given in the *Jatok Arnob* by 1080000 (the least cycle of years in which the Sun, Moon, and planets are assumed to return to a line of mean conjunction by the *Surya Siddhánta)* we shall have (rejecting the fractions and taking the nearest whole number) the same revolutions precisely as are given in the *Surya Siddhánta* (§ 22). This much may serve to shew who the real author of the *Surya Siddhánta* was: but, if any further documents should be deemed requisite, a reference to almost any of the principal astronomical works, written since the time of VARA'HA, must be sufficient. For, in the *Brohma Siddhánta*, *Vishnu Siddhánta*, *Siddhánta Munjeri*, and many others, that system or *Calpa* which is contained in the *Surya Siddhánta*, is expressly called the *Calpa* of VARA'HA: or, as some express it, "the *Calpa* of VARA'HA the fair." Therefore, any *Hindu* work in which the name of VARA'HA or his system is mentioned, must evidently be modern; and this circumstance alone totally destroys the pretended antiquity of many of the *Purans* and other books, which through the artifices of the *Brahminical* tribe, have been hitherto deemed the most ancient in existence.

74. FROM what has been said above, it appears extremely probable, that the name of VARA'HA, must have been to the *Surya Siddhánta* when it was first written, and the author well known; but that after his death, priestcraft found means to alter it, and to introduce the ridiculous story of MEYA' or MOYA, having received it through divine revelation at the close of the *Satya yug*: upon which petty fiction its present pretended antiquity is founded. But this it seems was not the only pious fraud committed by the crafty sons of BRAHMA; for it appears that a number of other astronomical works were then framed, calculated also for the purpose of deception among

among these, some were pretended to be delivered from the mouth of one or other of their deities, as the *Brohma Siddhánta*, *Vishnu Siddhánta*, and the works of SIVA, commonly called *Tontros*. Others, were pretended to have been received through revelation, as the *Sóma Siddhánta*, while others were fathered on sages, who were supposed to have lived in the remotest periods of antiquity, as the *Vasishta Siddhanta*, *Parásar Siddhanta*, *Rudra Siddhanta*, *Gorgá Siddhanta*, *Bhargob Siddhánta*, &c. to the number of about eighteen altogether, including the *Surya Siddhánta*. These eighteen are now called by way of pre-eminence, the eighteen original *Shasters* of astronomy, though amongst the whole I am informed, there are not above three or four real original works; the rest being compiled for one or other of these, with the diction or style a little altered, to answer the purposes of priestcraft; but the revolutions, motions, &c. of the planets, remaining the same as in the original.

75. THESE books, are however, become now very scarce; at least in this part of *India*; so much so, that it was with a great deal of difficulty I procured the following out of the number, viz. the *Somá Siddhánta*, *Brohma Siddhánta*, *Vishnu Siddhánta*, *Vasishta Siddhánta*, and the *Groho Jamul*, one of the works pretended to have been written by SIVA: but even from these few, a general idea may be formed of the antiquity of the rest.

THE *Sómá Siddhánta*, *Vasishta Siddhánta*, and *Groho Jamul*, adopt the system given in the *Surya Siddhánta* by VARA'HA. The *Brohma Siddhánta* appears to have been deduced from the *Bhasvoti*, by calculating from that work the positions of the Sun, Moon and planets, at the commencement of the *Calpa* of *Brohma*, and making the calculations to commence from that epoch

epoch instead of the year 1021 of *Saka*, the date of the *Bhasvoti*. The *Vishnu Siddhánta* differs in nothing from the *Broma Siddhánta* except in the epoch from which the calculations are directed to be made; being the commencement of the *Calpa* of VARA'HA. Hence, these books are evidently modern forgeries. The *Parásar Siddhánta*, I am informed, has been taken from the *Brohma Siddhánta*, in the same manner, as that of *Vasishta* has been taken from the *Surya Siddhánta*.—Indeed, there is reason to suspect that the whole of the works attributed to PARA'SAR, are forgeries of a very modern date: I have now in my possession a work pretended to be his, entitled " *Krist Parásar*" (i. e. PARA'SAR on agriculture) which is a most palpable forgery. This insignificant little work contains more of astrological nonsense and predictions, than of real husbandry: nothing of any moment can be undertaken; the grouhd cannot be ploughed; nor the corn sown; without first examining the state of the heavens, to know if the time be lucky or not; but what discovers the imposition, are certain astrological rules given in the body of the work.—Thus, to calculate the governing planet or Raja for the year; the author says, " multiply the year of *Saka* by 3, to the " product add 2, divide the sum by 7, and the re-" mainder will shew the governing planet or Raja " for the year, to which if you add 3 (deducting 7 " if the sum admit), you will have its prime minister."* The name " *Saka*" shews the forgery, for PARA'SAR is supposed to have lived several centuries before the era of *Saka* or *Saliban*.

76. THE *Bhasvoti*, I believe, was originally calculated for the meridian of *Siam*, and was introduced

* THE governing planets are 1. Sun. 2. Moon. 3. Mars. 4. Mercury. 5. Jupiter. 6. Venus. 7. Saturn in their order.

in-

into this part of *India*, as appears from the formula for calculating the *Sonkranti*, about the year 1190 of *Saka*; or 167 years after its date—The formula given in the *Brohma Siddhanta* for calculating the *Sonkranti* for *Bysack*, (i. e. the instant the Sun enters aries according to true motions) makes the time come out later by one *Hindu* minute, than the *Bhasvoti*. Hence, supposing that the formula of each when written, was regulated or made to agree with the *Surya Siddhanta*, which was then the standard work; the *Brohma Siddhanta* must have been deduced from the *Bhasvoti*, about 43 years after its introduction into this part of *India*: or about the year 1233 of *Saka*. This conjecture, if true, may be of use in pointing out the epoch of the forgeries of their eighteen *Siddhantas*, &c. as it is probable, the whole may have been done nearly about the same time, to answer some particular purpose the *Brahmins* might have then in view.

77. The mean annual motions of the Sun, Moon and planets, according to the *Bhasvoti*, *Bromha Siddhanta*, *Vishnu Siddhanta*, and some others, are as follow:

	Hindu Sphere.			
Sun, -	0^{s}	0°	$0'$	$0''$
Moon, -	4	12	46	40
Mercury -	1	24	46	$57\frac{9}{23}$
Venus, -	7	15	11	$10\frac{130}{161}$
Mars, -	6	11	24	20
Jupiter, -	1	0	20	54
Saturn, -	0	12	12	$51\frac{3}{7}$
Moon's Apogee,	1	10	41	$5\frac{5}{43}$
——— Node, -	0	19	21	$32\frac{13}{51}$

78. The length of the year, according to the above-mentioned works, is $365^{Ds.}\ 15^{do.}\ 31'\ 30''$; hence we get the following mean motions of the Sun, Moon

Moon and planets, in that space of time, from De la Lande's tables:

	European sphere.				reduced to *Hindu* sphere.			
Sun -	0^s	0°	0′	58″,648	0^s	0°	0′	0″
Moon -	4	12	47	38,9765	4	12	46	40,3285
Mercury -	1	24	46	35,51	1	24	45	36,8620
Venus -	7	15	12	22,2097	7	15	11	23,5617
Mars -	6	11	25	17,8082	6	11	24	19,1602
Jupiter -	1	0	21	47,1505	1	0	20	48,5025
Saturn -	0	12	14	8,0193	0	12	13	9,3713
Moon's Apogee	1	10	41	34,25	1	10	40	35,6020
——— Node	0	19	20	52,41	0	19	21	51,0580

By comparing these motions with those in § 77, some idea may be formed of the antiquity of the works; but as the *Brohma Siddhánta* and *Vishnu Siddhánta*, take notice of the *Calpa* of Varaha, it is clear that neither of them can possibly be older than the time of that astronomer.

79. The Sun's apogee, and the aphelia of the planets have no motion according to these works; nor do they make a conjunction of the planets at the commencement of the *Cali yug*; beginning of either *Calpa*; or at any other period.

80. The next astronomer of any considerable note we meet with after Varaha and Sotanund, is Bhasker Acharya. This man according to the *Totvochintamoni* was born in the year 1036 of *Saka*, and in the year 1072, wrote or compiled his astronomical work called the *Siddhanta Siromoni*, in which he adopted the numbers of Brohma Gupta. He also wrote or compiled several other works,

works, some of which are yet extant, as the *Lila Voti* and *Beej Gonita;* the former on mensuration, the latter on algebra.

81. From the revolutions of the Sun, Moon, and planets, &c. in a *Calpa* according to *Brohma Gupta*, (§ 21), we obtain the following mean annual motions:

	S.	O	I	II	III	IV	V	VI
Sun - - -	0	0	0	0	0	0	0	0
Moon - - -	4	12	46	30	0	0	0	0
Mercury - -	1	24	44	59	41	42	43	12
Venus - -	7	15	11	56	50	51	21	36
Mars - - -	6	11	24	8	33	23	45	36
Jupiter - -	1	0	21	7	56	11	24	0
Saturn - -	0	12	12	50	11	21	50	24
Moon's Apogee	1	10	40	31	45	26	38	24
——— Node	0	19	21	33	21	1	26	24
Sun's Apogee					8	38	24	0

which motions being reckoned from the commencement of the *Calpa* of *Brohma*, gave the positions of Sun, Moon and planets, with those of the Moon's apogee and node in the time of the author of the system, as near as he could determine them by observation. This *Calpa* of BROHMA GUPTA, is made to commence with *Sunday* at the instant of Sun-rise on the meridian of *Lanka*.

82. The number of mean solar days assigned to this *Calpa*, is 1577916450000: And the length of the year therefore $= \frac{1577916450000}{4320000000} = 395^{Ds.}\ 15^{do.}\ 30'\ 22''\ 30'''$; hence we have the following mean motions of the Sun, Moon and planets, &c. from DE LA LANDE's tables, in that space of time.

Sun

	European sphere.	*Hindu* sphere.
Sun -	0s. 0° 0′ 57″,539	0s. 0° 0′ 0″
Moon -	4 12 47 24, 15	4 12 46 26,611
Mercury -	1 24 46 30, 91	1 24 45 33,371
Venus -	7 15 12 20, 46	7 15 11 22,921
Mars -	6 11 25 17, 22	6 11 24 19,681
Jupiter -	1 0 21 49, 052	1 0 20 51,513
Saturn -	0 12 14 7, 976	0 12 13 10,437
Moon's Apogee	1 10 41 34, 13	1 10 40 36,591
——— Node	0 19 20 32, 36	0 19 21 29,899
Sun's Apogee	1 2, 152	4,613

83. THE mean motions of the Sun, Moon and planets, &c. for 100 *Hindu* years;

	By the System of BROHMA GUPTA. *Hindu* sphere.	DE LA LANDE'S *Tables.* *Hindu* sphere.	*Difference, the former* + *or* —
Sun	0s. 0° 0′ 0″	0s. 0° 0′ 0″	0′ 0″
Moon	10 17 30 0	10 17 24 21,1	+ 5 38,9
Mercury	2 14 59 29,5	2 15 55 37,1	—56 7,6
Venus	6 19 54 44,8	6 18 58 12,1	+56 32,7
Mars	2 0 14 15,7	2 0 32 48,1	—18 32,4
Jupiter	5 5 13 13,6	5 4 45 51,3	+27 22,3
Saturn	4 21 23 38,9	4 21 57 23,7	—33 44,8
Moon's Apogee	3 17 32 55,7	3 17 40 59,1	— 8 3,4
— Node	4 15 55 35	4 15 49 49,9	+ 5 45,1
Sun's Apogee	14,4	7 41,3	— 7 26,9

84. THE year 4900 of the *Cali yug*, according to this system will end on the 11th *April* 1799, at 15′ past two P. M. on the meridian of *Lanka:* at which instant the mean longitudes of the Sun, Moon and planets, &c. will be

According to BROHMA GUPTA.	Hindu Sphere.				DE LA LANDE Hindu Sphere.				Difference the former + or —			Age deduced.
	s.	°	′	″	s.	°	′	″	°	′	″	Years.
Sun's mean Longitude	0	0	0	0	0	0	0	0				
Moon's ditto	2	17	30	0	2	16	2	17,6	+ 1	27	42,4	1183
Mercury's ditto	2	11	59	35,3	2	27	45	28,9	—15	45	53,6	1685
Venus's ditto	2	14	24	47,6	2	2	25	11,4	+11	59	36,2	1272
Mars's ditto	2	10	42	37,7	2	14	34	33,4	— 3	51	57,7	1250
Jupiter's ditto	1	15	15	44,8	1	10	16	40,4	+ 4	59	4,4	1036
Saturn's ditto	2	27	5	21,7	3	4	39	28,5	— 7	34	6,8	1254
Moon's apogee	11	25	23	16,9	11	26	28	51,5	— 1	5	34,6	814
node sup.	11	3	36	34,6	11	2	20	37,3	+ 1	15	57,3	1320
Sun's apogee	2	17	57	21,6	2	19	53	28,5	— 1	56	6,9	1559

Sum of the several ages deduced - - = 11373

Mean age of the system of BROHMA GUPTA = $1263\frac{2}{8}$ yrs.

85. THE revolutions of the equinoxes in a *Calpa* according to this system are 199669. Hence the annual precession, $= \frac{199669}{4320000000} =$ - 59″,9007

DE LA LANDE's tables make it (§ 82) 57 , 539

Difference - - - - 2 ,3617

IN the *Groho Laghob*, written in the year 1442 of *Saka*, by GONESH son of KESOBO, the annual precession is stated at one minute; and at the end of the year 444 *Saka*, or 3623 of the *Cali yug*, the first point of aries in the *Hindu* sphere was supposed to have coincided with the vernal equinox. I mention these circumstances merely to shew that the quantity of the annual precession, and the point from whence it is computed, are not the same in all *Hindu* books of astronomy.

HAVING thus given a general outline of the *Hindu* systems of astronomy at present in use, with their formation, and the principles on which they are

4 founded;

founded; I shall now close the subject with the following tables and precepts for calculating the commencement of the *Hindu* years and months, according to astronomical and civil reckonings, and the corresponding times in the *European* calendar.

THE instant the Sun enters a sign, is called by the *Hindus Sonkranti;* and at that moment the astronomical month begins. If the Sun enters a sign between Sun-rise and midnight, the civil month will begin at the following Sun-rise. But if the Sun enters a sign between midnight and Sun-rise it is then called *Kót Sonkranti*, and the whole of the following day and night belong to the preceding civil month.

THE astronomical day, in this part of *India*, is reckoned from midnight to midnight, and begins at the equator six hours earlier than the civil day of the same name: the civil, begins at Sun-rise, and continues to the Sun-rise following.

THE following tables are constructed to shew the time elapsed of the day according to civil reckoning; (or rather from six A. M.)—so that if you add fifteen *dondos*, you have the time expired from midnight:—the *Hindu* parts of a day, are converted into *European* hours, minutes, &c. by multiplying by 2 and dividing the product by 5, and *vice versa*.

TA-

TABLE I.

Years.	Days.	do.	′	″	Years.	Days.	do.	′	Years.	Days.	do.	′	Years.	Days.	do.	′
1	1	15	31	30	10	12	35	15	100	125	52	30	1000	1258	45	
2	2	31	3		20	25	10	30	200	251	45		2000	2517	30	
3	3	46	34	30	30	37	45	45	300	377	37	30	3000	3776	15	
4	5	2	6		40	50	21		400	503	30		4000	5035	.	
5	6	17	37	30	50	62	56	15	500	629	22	30	5000	6293	45	
6	7	33	9		60	75	31	30	600	755	15		6000	7552	30	
7	8	48	40	30	70	88	6	45	700	881	7	30	7000	8811	15	
8	10	4	12		80	100	42		800	1007	-		8000	10070	.	
9	11	19	43	30	90	113	17	15	900	1132	52	30	9000	11328	45	

This table has been computed from the length of the year given in the *Bhasvoti*, *Brhoma Siddhanta*, &c. In *Hindu* tables of this kind, the days are divided by 7, and the remainder only set down; which renders them more commodious and expeditious in practice: however, such would not answer our purpose, for we must have the days entire, in order to get the corresponding time in the *European* calendar, from the excess of the *Hindu* above the *Julian* reckoning, which amounts to 7 days in 800 years.

TABLE II.

Signs.	Month.	Days.	do.	′	″	Signs.	Month.	Days.	do.	′	″
♈	Bysack Sonkranti	3	39	42		♎	Cartick Sonkranti	190	34	54	
♉	Jyisti ditto	34	34	49	30	♏	Ogrohain ditto	220	28	36	
♊	Assar ditto	66	0	19	30	♐	Pous ditto	249	57	42	
♋	Srabon ditto	97	38	43	30	♑	Magh ditto	279	16	49	30
♌	Bhadro ditto	129	7	45		♒	Phalgun ditto	308	42	58	
♍	Aswin ditto	160	8	12		♓	Choitro ditto	338	32	57	

TABLE III.

Month. Days.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1	323	354	17	48	78	109	139	170	201	231	262	292
2	324	355	18	49	79	110	140	171	202	232	263	293
3	325	356	19	50	80	111	141	172	203	233	264	294
4	326	357	20	51	81	112	142	173	204	234	265	295
5	327	358	21	52	82	113	143	174	205	235	266	296
6	328	359	22	53	83	114	144	175	206	236	267	297
7	329	360	23	54	84	115	145	176	207	237	268	298
8	330	361	24	55	85	116	146	177	208	238	269	299
9	331	362	25	56	86	117	147	178	209	239	270	300
10	332	363	26	57	87	118	148	179	210	240	271	301
11	333	364	27	58	88	119	149	180	211	241	272	302
12	334	365	28	59	89	120	150	181	212	242	273	303
13	335	1	29	60	90	121	151	182	213	243	274	304
14	336	2	30	61	91	122	152	183	214	244	275	305
15	337	3	31	62	92	123	153	184	215	245	276	306
16	338	4	32	63	93	124	154	185	216	246	277	307
17	339	5	33	64	94	125	155	186	217	247	278	308
18	340	6	34	65	95	126	156	187	218	248	279	309
19	341	7	35	66	96	127	157	188	219	249	280	310
20	342	8	36	67	97	128	158	189	220	250	281	311
21	343	9	37	68	98	129	159	190	221	251	282	312
22	344	10	38	69	99	130	160	191	222	252	283	313
23	345	11	39	70	100	131	161	192	223	253	284	314
24	346	12	40	71	101	132	162	193	224	254	285	315
25	347	13	41	72	102	133	163	194	225	255	286	316
26	348	14	42	73	103	134	164	195	226	256	287	317
27	349	15	43	74	104	135	165	196	227	257	288	318
28	350	16	44	75	105	136	166	197	228	258	289	319
29	351	17	45	76	106	137	167	198	229	259	290	320
30	352		46	77	107	138	168	199	230	260	291	321
31	353		47		108		169	200		261		322

In leap years after *February* take out one day less.

REMARKS. If the number of days given exceed 365, take the difference, and with that find the

month

month and day: 2d. If the number given, falls in the table before the day on which *Bysack* begins,—the month and day of the month corresponding will belong to the year following; and must be dated accordingly.

I. To find the instant the Sun enters a sign or the *Sonkranti*.

Precept. With the years expired of the *Cali yug* enter Table I, and take out the days, &c. corresponding: take from Table II, the days, &c. opposite the given month, and add them to the former: divide the days thus found by 7, the remainder will shew the day of the week, and the fraction the time elapsed from 6 A. M. when the Sun enters the sign according to true motions.

II. To find the day on which the civil month begins.

Precept. If the Sun enters the sign between sun rise and midnight, add 1 to the day of the week on which the *Sonkranti* falls; but if between midnight and sun rise add 2, and the sum will be the day of the week on which the civil month begins at sunrise.

III. To find the corresponding time, according to the *European* calendar.

Precept. 1. To the number of days found from Tables I, and II, add 1 or 2, according as the *Sonkranti* happens to fall before or after midnight as in the last, and reserve the sum. 2. To the years expired of the *Cali yug* add 3, and divide the sum by 4: add to the quotient the years expired of the *Cali yug*, and subtract the sum from that which you reserved.

reserved. 3. With the remainder enter Table III, and take out the month and day corresponding, which will be the month and day of the month of the *European* calendar, on which the *Hindu* civil month begins at Sun rise according to Old Style.

IV. To find the year before or after the *Christian* era, corresponding to any year of the *Cali yug*.

Precept. The *Cali yug* began 3102 years before the commencement of the *Christian* era, or 3101 before the year of CHRIST's birth: therefore, if the years expired of the *Cali yug* exceed 3102, the excess + 1, will be the current year of the *Christian* era in which the first month *Bysack* of the current *Hindu* year begins. 2. If the years fall short of 3102, the difference will be the years before the *Christian* era: or the difference — 1, will be the years before the year of CHRIST's birth.

EXAMPLE I.

REQUIRED the day of the week and day of the month of the *European* calendar, corresponding to the first of *Bysack* in the year 4901 of the *Cali yug*?

Years expired = 4900, and 4900 + 1 — 3102 = A. D. 1799.

Table I. For 4000	=5035	0	0	Sum 6171 + 1 -	=6172
900	=1132	52	30	$\frac{4900+3}{4}$	=1225
Table II. *Bysack* =	3	39	42	Add	4900
Sum, -	=6171	32	12	Sum - - -	6125
Sonkranti, Wednesday,	4	32	12	Difference = 31st *March* O.S.	47
Add per precept,	1			Add diff. between O.&N.S.	=11
Bysack begins on *Thursday*	5	0	0	Sum = 11th *April*, 1799, N.S.	=58

The days of the week are always expressed by figures, as, 1 for *Sunday*, 2 for *Monday*, &c.

EXAMPLE II.

REQUIRED the day of the week and day of the month of the *European* calendar, corresponding to the 1st of *Cartick*, in the year 4901 of the *Cali yug*?

 Years

Years expired as in the last.

Table I. For 4000=5035 0 0	Sum 6358+1 - -	=6359
900=1132 52 30	$\frac{4900+3}{4}$=1225	
Table II. *Cartick* = 190 34 54	Add 4900	
Sum - 6358 27 24	Sum, - -	6125
Sonkranti, Monday, 2 27 24	Difference=4th *October*, O. S.	234
Add - - 1	Difference of style add	11
1st *Cartick*, on *Tuesday*, 3	Sum,=15th *October*. N. S.	=245

EXAMPLE III.

REQUIRED the day of the month, &c. on which the 1st of *Choitro* in the year 4901 falls?

Table I. For 4900=6167 52 30	Sum, - 6507
Table II. *Choitro* = 338 32 57	Deduct as above - 6125
Sum, - 6506 25 27	Remainder, - 382
Add - 1	Deduct 1 year - =365
Sum, - 6507	Remainder, - - 17
1st *Choitro*, on *Wednesd.*=4	which per Table III=1st *March* O. S. or 12th *March*, N. S. A. D. 1800.

EXAMPLE IV.

REQUIRED the day of the week and day of the month of the *European* calendar, corresponding to the 10th of *Cartick* in the year 1711 of the *Cali yug*?

Years expired=1710, and 3102—1710+1=B. C. 1391.

Table I. For 1000=1258 45 0	The 10th *Cartick* - =2353
700= 881 7 30	$\frac{1710+3}{4}$= 428
10= 12 35 15	Add - 1710
Table II. *Cartick* = 190 34 54	Sum - - - =2138
Sum - - 2343 2 39	Difference - = 215
Add - 1	Which per Table = 15th *Sept.* O. S. diff. between O. & N. S. was then =— 12
1st *Cartick* - =2344	Therefore 215 — 12 = 203
Add - - 9	Which per Table=3d *Sept.* N. S.
10th *Cartick* - =2353	
Which falls on *Sunday* - = 1	

WHEN

When the *Sonkranti* happens to fall at or near midnight, the *Hindu* astronomers (or rather calculators of almanacks) not unfrequently differ amongst themselves with respect to the day on which the civil month begins: some making it later or earlier than others by a day, according to the works or tables from which each makes his computation. But independent of this irregularity, there is another which probably arises from local custom: in some of the *Nuddea* calendars, the civil month is invariably made to begin at the Sun-rise immediately following the instant of the *Sonkranti*, whether the same happens before or after midnight:—On the other hand, most of the calendars calculated in and about *Calcutta*, and at *Balia*, make the month begin a day later when the Sun enters the sign after midnight, agreeable to the rules above laid down.

APPENDIX.

RULES OF THE ASIATICK SOCIETY.

SIR WILLIAM JONES, the revered founder of the Society, in his Discourse, delivered on the 15th *February*, 1784, and published in the first volume of these Researches, recommended that in the infancy of the Society, there should be no formal rules. Accordingly none were passed, but the suggestions in the above discourse were unanimously adopted, and having been since uniformly acted upon, they may be considered the original rules of the institution. They were, in substance, as follow:

I. THAT the Institution be denominated the *Asiatick Society*; that the bounds of its investigations be the geographical limits of Asia; and that within these limits, its inquiries be extended to whatever is performed by man or produced by nature.

II. THAT weekly meetings be held for the purpose of hearing Original Papers read, on such subjects as fall within the circle of the Society's inquiries.

III.

III. THAT all curious and learned men be invited to send their tracts to the Secretary; for which they shall immediately receive the thanks of the Society.

IV. THAT the Society's Researches be published annually, if a sufficiency of valuable materials be received.

V. THAT mere translations of considerable length be not admitted, except of such unpublished essays or treatises as may be transmitted to the society, by native authors.

VI. THAT all questions be decided on a ballot, by a majority of two-thirds, and that nine members be required to constitute a board for such decisions.

VII. THAT no new member be admitted who has not expressed a voluntary desire to become so; and in that case, that no other qualification be required, than a love of knowledge, and a zeal for the promotion of it.

The foregoing are the only general points noticed in the Founder's Discourse, but an additional rule was introduced by him, and has been since continued, in proposing and electing new members, viz. That the proposition having been made and seconded, the election take place by ballot, at the next meeting. This rule has also been considered applicable to all questions of importance.

On the 19th of *August*, 1796, a meeting of the Society was held, for the special purpose of considering the best means of rendering the Institution permanent, and for determining whether a House should be provided for the future meetings of the Society, when it was

RESOLVED,

RESOLVED,

1st. THAT application be made to his Majesty, for a Charter of Incorporation for this Society.

2d. THAT a House be provided, for the use of the Society.

3d. THAT a Committee be appointed to consider the best mode of carrying into execution the objects of the two foregoing resolutions, and to report their opinion at the next meeting of the Society.

4th. THAT the Committee be requested to consider any rules and regulations for advancing and promoting the objects of the Institution of the Society, and lay them before the Society for their determination at a future meeting.

ON the 29th of *September* 1796, the Committee elected on the 19th of *August* submitted the following propositions which were unanimously adopted by the Society.

1st. THAT the intended application to his Majesty to obtain a Charter of Incorporation for the Society, be made through the Governor General in Council and the Court of Directors.

2d. THAT the best mode of carrying into execution the second resolution of the Society on the 19th *August*, will be, by building a commodious house, as soon as the funds requisite shall be provided.

3d. THAT, in order gradually to establish funds for that purpose, and for defraying the necessary current expences of the Society, an admission fee be established; and that, as none of the present Members of the Society, have hitherto paid any fees, those resident

resident in *India* contribute two gold mohurs in lieu thereof.

4th. THAT a like sum of two gold mohurs be paid in future by every new Member as an admission fee on his election.

5th. THAT every Member of the Society, resident in *India*, (honorary Members excepted) pay four gold mohurs per annum, quarterly, in the first week of *January*, *April*, *July*, and *October*, and any Member neglecting to pay his subscription for half a year after it becomes due, be considered as no longer belonging to the Society.

6th. THAT as admission fees and quarterly contributions would not, under a long course of time, afford funds sufficient to build a house, a subscription for voluntary contributions be opened, and application made to Government for a convenient spot of ground, as a site for the proposed Building.

7th. THAT a Treasurer be elected.

8th. THAT as frequent meetings would tend to promote the general objects of the Society, weekly meetings be established, as soon as the building intended for the purpose shall be finished; and that, in the mean time, a meeting of the Society be held at least once in a month.

9th. THAT, as it may not always be convenient for the President to attend on such occasions, it is adviseable to elect first and second Vice Presidents annually.

10th. THAT the Society appoint a Committee of Papers, consisting of the President, Vice Presidents, and Secretary, for the time being, together with five other Members, to be elected annually; and that this Com-

Committee shall select the papers for publication, and superintend the printing of the Transactions of the Society.

11th. THAT the Society make it publickly known, that it is their intention to establish a Museum and Library, and that donations of books, manuscripts, and curiosities, will be thankfully received and acknowledged.

THE five first volumes of the Society's Researches were published by the Superintendents of the Honourable Company's Press, for the produce of their sale; but on the 3d of *May* 1798, the Society resolved as follows

1st. THAT the Transactions be hereafter published at the expence, and on account of the Society; both, as the Society has now a fund which may be applied to that purpose, and as by this means the Society will be enabled to publish any number of engravings that may be thought necessary to illustrate the Papers, as well asto regulate the price, and thereby extend the circulation of them.

2d. THAT the Transactions be published in *India*, as more convenient for the superintendence of the Press, as well as being more suitable to an *Asiatick* Society; and that the mode of publication, with all other details, be left, as heretofore, to the Committee of Papers.

3d. THAT the Committee of Papers be authorized to draw upon the Treasurer for any sums requisite to defray the expence of publishing the Transactions; and that an order, signed by a majority of the Committee, be a sufficient warrant to the Treasurer for paying the same.

23d AUGUST,

23*d* *AUGUST*, 1798.

Resolved, that any Member of the Society may have the privilege of introducing, as a visitor, any Gentleman who is not usually resident in *Calcutta*.

11*th* *OCTOBER*, 1798.

On a question, proposed at a meeting held on the 27th of *September*, " Whether absent Members, " resident in *Calcutta*, shall be allowed to vote by " proxy on the election of Vice Presidents and Com- " mittee of Papers." The Society determined in the negative.

10*th* *JANUARY*, 1799.

Resolved.

1ſt. That it will be proper to publish, with each volume of the Researches, a list of such Oriental subjects as may be considered in the light of Desiderata; to be prepared, by the Committee, from lists, submitted to the Society, by the Members or others.

2d. That, as a testimonial to the merit of the best Papers, communicated to the Society, on the subjects proposed as Desiderata, the author be presented with the volume of Researches, wherein such Paper is contained, accompanied with a complimentary letter, from the Secretary, in the name of the Society.

3d. That the rules of the Society, not already published, be inserted in an Appendix to the next volume.

4th. That four additional Members of the Committee of Papers be elected; and that the Committee do hereafter consist of thirteen Members, including the President, Vice Presidents, and Secretary; of whom, any Member, not less than five, may be competent to form a Committee.

FEB-

FEBRUARY, 7th, 1799.

THE Committee of Papers were authorized by a reso ution of the Society to defray any small contingent expences on account of the Society, which they might deem indispensable.

JULY 4th, 1799.

RESOLVED,

THAT, in case, at any future meeting of the Society, the President and both Vice Presidents should be absent, a quarter of an hour after the fixed time of meeting; the senior Member of the Society present, shall take the chair for the evening.

THE meetings of the Society are now held on the first Thursday of every month, at eight o'clock from the autumnal to the vernal equinox, and at nine during the other six months of the year.

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